Organizational Behaviour And Personnel Psychology

Kenneth N. Wexley

Andgary A. Yulk

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Organizational Behavior and Personnel Psychology

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Organizational Behavior and Personnel Psychology

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In Loving Memory of Our Fathers
H. I. Wexley
John Yukl

Preface

The purpose of this book is to introduce the reader to the study of work behavior in organizations. The contents are drawn primarily from two distinct areas: organizational behavior and personnel psychology. Both topic areas are directly relevant to the understanding and improvement of work behavior in organizational settings.

The second edition of the book has an expanded coverage of topics reflecting the continuing evolution of the field. New chapters have been added on Decision Making in Organizations, Power and Politics in Organizations, and The Work Environment. All of the original chapters have been revised and updated. The order of the chapters has been changed to be consistent with the more popular micro-to-macro sequence of topics within organizational behavior.

The book was designed as a primary text for courses in industrial-organizational psychology at the undergraduate or beginning graduate level. The book is also appropriate for use in organizational behavior courses within a school of business or management. The section on organizational behavior covers all of the important topics usually included within such a course. The section on personnel psychology includes topics in human resource management that are clearly relevant for managers. It is frequently necessary for a manager to select, train, and evaluate the performance of subordinates, and some general knowledge of how these functions should be performed can be highly useful.

The major theories and concepts of organizational behavior and personnel psychology are covered in considerable detail, yet we have not included the endless review of trivial details and obscure facts that appear in so many other books. As in our earlier edition, we have tried to show the practical implications of theory for improving work behavior. We have attempted to write the book in simple, clear language with a minimum of ambiguity and technical jargon. Concrete examples are frequently provided to clarify concepts for the reader. Review and discussion questions and summaries are provided at the ends of chapters to stimulate thought about the important concepts and their implications. Finally, we have written the book in a way that precludes the need for a background in statistics, psychology, or business administration, even though our coverage of theory and research is at a sophisticated level not found in many of the competing books.

We are grateful for the helpful comments made by Richard Klimoski, Dennis Dossett, and Galen L. Baril on an earlier draft of this manuscript. In addition, our wives (Ruth and Maureen) and our children (Matthew, David, Gregory, and Steven) deserve special thanks for their understanding and patience throughout the preparation of this revision.

Kenneth N. Wexley
Gary A. Yukl

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1

Introduction

Our society is composed of many different kinds of organizations. There are military, health, religious, political, industrial, governmental, social, and educational organizations to name just a few. These organizations affect our lives in important ways. Our health, well-being, education, security, and standard of living depend upon how effectively these organizations achieve their objectives. Further, these organizations provide the setting in which most persons spend a large part of their time working. Realizing the pervasiveness of organizations in our lives, it is not surprising that behavioral and social scientists (e.g., psychologists, sociologists, anthropologists, economists, political scientists) have exerted a great deal of effort in the study of organizations and their processes.

The purpose of this book is to review available theory and research relating to work behavior in organizations. Behavioral scientists are concerned with studying the behavior of individuals and groups in organizations, as well as the organization in its entirety. They hope to further their understanding of these complex phenomena so as to enhance organization effectiveness and the satisfaction of organization members. In order to accomplish this objective, they must address themselves to a wide spectrum of problems that arise in work organizations—such as maximizing employee motivation, coordinating the activities of various groups, providing appropriate leadership, and selecting the best employees.

Since the information presented in the remainder of this book is based on the research performed by behavioral scientists, it would be of value to consider briefly how this research is conducted. We make no attempt in this chapter to teach the reader how to conduct organizational research. Instead, we are concerned with developing an appreciation and feel for what rigorous research *is* and *is not*. First, we shall discuss what is commonly referred to as "the scientific approach" to gaining knowledge. Following this, we shall briefly discuss three scientific methods used for studying organizations. Finally, we shall present some of the problems and difficulties that scientists encounter when conducting research in organizational settings.

THE SCIENTIFIC APPROACH

There are many different methods that behavioral scientists use to gain knowledge about organizations. Although these methods differ from one another in various ways, they have certain common features that make them a part of the scientific approach. More will be said about these specific scientific methods in the next section. Let us now look at some of the essential characteristics of the scientific approach.

1. *The scientific approach is self-correcting.* This is one of the characteristics that no other method of attaining knowledge possesses. There are built-in checks all along the way to obtaining scientific knowledge. These checks are used to continually verify the scientist's activities and conclusions. Even if a study seems to confirm a certain hypothesis, the scientist will continue to test alternative hypotheses that may cast doubt on the first results (Kerlinger, 1973).

2. *Scientific investigation is empirical.* If scientists believe something to be true, they must somehow put those beliefs to a test outside themselves. The scientist's perceptions, beliefs, and attitudes are not taken as truisms, but are carefully checked against objective reality.

3. *Scientific investigation is open to public inspection.* Every scientist writing a research report has other scientists in the field reading what he or she writes. The report contains a complete description of the purpose of the research, the procedures followed, the variables measured, the results obtained, and the conclusions reached. Although it is possible for scientists to exaggerate their findings, this is not likely, since the exact procedures can be replicated and the results tested by other qualified researchers.

4. *Scientific investigation is objective and statistical.* Bias does not enter into the scientist's data collection procedures. These data are usually analyzed statistically, thus allowing the scientist to arrive at a certain level of confidence in the results obtained.

5. *Scientific investigation is controlled and systematic.* The research situation is tightly disciplined so that the researcher can have substantial confidence in the outcomes obtained. Scientists try to systematically rule out possible causes for the results they are studying other than the variables they have hypothesized to be the causes.

6. *Scientific investigations generate theories.* A theory is a synthesis or conceptual framework for organizing and explaining phenomena previously observed by scientists while conducting research on a particular topic. These scientific theories direct future research by specifying the salient characteristics of the variables studied and the interrelationships among the set of variables (Zedeck & Blood, 1974). In doing so they suggest new hypotheses to be tested.

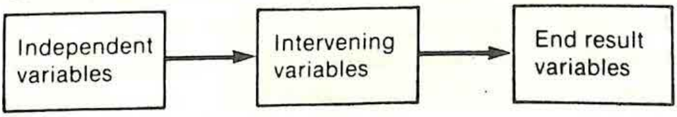
7. *Scientific investigations test hypotheses.* After thinking about a problem, a scientist usually tries to formulate a hypothesis to be tested. A hypothesis is "a conceptual statement, a tentative proposition, about the relation between two or more observed . . . phenomena or variables." Our scientist will say, "If such-and-such occurs, then so-and-so results" (Kerlinger, 1973, p. 12).

8. *The aim of scientific investigation is to explain, understand, predict, and change.* The scientist attempts to explain and understand human behavior in organizations. One might, for example, want to understand and explain the processes underlying worker motivation. Only through explanation and understanding could the scientist hope to improve the behavior of poorly motivated workers.

RESEARCH METHODS USED BY BEHAVIORAL SCIENTISTS

Before proceeding any further, the reader should become familiar with the terms *independent variable, dependent variable,* and *intervening variable.* The independent variable is the factor that is usually manipulated in some way by the scientist, such as leadership behavior, organizational structure, or method of pay. The dependent variable (sometimes referred to as a criterion) is a measure of the effects of the independent variable, such as productivity, absenteeism, and satisfaction. Some processes involve a "causal chain" of sequential effects (see Figure 1–1). Here there are intervening variables affected by the independent variable and "end-result variables" that are affected subsequently by the intervening variables. Of course, larger causal chains are also possible. It is important to include intervening variables in research where the independent variables only indirectly affect the end-result variable. Without the intervening variables, it is difficult to understand the reason for an association between variables. For example, suppose physicians discover that a particular drug cures a disease.

FIGURE 1–1
Causal chain with intervening variables



Until they learn how the drug affects bodily processes, it will not be clear why the drug works or whether it is likely to have undesirable long-term side effects.

There are various methods that scientists use to study organizational processes. In this section we shall examine three of the most widely used techniques: the laboratory experiment, the field experiment, and correlational research. The reader should note that research programs sometimes involve more than one approach. For instance, to better understand how job enrichment affects employee motivation and productivity, a scientist may employ a combination of laboratory and field experimentation.

The laboratory experiment

In a laboratory experiment, the scientist has the most control over whatever phenomenon is being studied. Typically the scientist systematically varies a certain independent variable (e.g., group size) while holding constant or "controlling" certain extraneous variables. In this way, any consequent effects on the dependent variable (e.g., an increase in productivity) can be attributed to the independent variable. Many social and behavioral scientists in universities conduct laboratory research using students primarily as subjects. Much of what we know today about such areas as organizational leadership, small group behavior, motivation, and organizational conflict result from laboratory experimentation. Many of the theories presented throughout this text were initially investigated in the laboratory and, in some cases, later replicated in field settings. The major drawback of laboratory experimentation is the possibility that the findings cannot be generalized to real organizational settings. Often, laboratory results have limited generalizability because of their artificiality. The behavior of a sophomore participating in a one-hour laboratory experiment can be quite different from the work behavior of an experienced employee.

The field experiment

In a field experiment the scientist attempts to manipulate variables in an actual organization instead of a laboratory. Since the scientists are operating in a complex environment, they have less control over certain extraneous variables that can affect the dependent variables they are interested in measuring. This often creates ambiguous results, since the scientists cannot be certain whether the changes in the dependent variables are caused by the independent variables or some other factors. The major advantage of this method is its realism and thus the generalizability of results to other organizations. An example of a field experiment is a study comparing the impact of two pay-incentive plans on employee attendance. In one condition the incentive plan is imposed on work groups by company management, and in the other condition the incentive plan is developed by the employees themselves. Employees are randomly assigned to the two conditions, and perhaps also to a control group with no incentive plan.

There is always the question of whether field experimentation is better or worse than laboratory experimentation. Campbell and Stanley (1963) distinguish between internal validity and external validity. Internal validity deals with the question: Did the experimental treatments really make a difference in this specific experimental instance, or was it caused by certain extraneous variables? External validity asks the question of generalizability: To what populations, settings, treatment variables, and measurement variables can this effect be generalized? Both types of validity are obviously important to any experiment, even though they are frequently at odds with one another. Field experimentation usually maximizes external validity at the expense of internal validity. The opposite is true about laboratory experimentation. The relative importance of both types of validity will depend on the problem being investigated. For instance, investigations of theoretical issues are often more suited to laboratory experimentation, and investigations designed to solve practical problems are usually more suited to field experimentation.

Correlational research

The third method, correlational research, is one in which the scientist determines the relationship between two variables as they exist in an actual organizational setting. No attempt is made here to manipulate one of the variables to see if changes in it cause changes in another variable. The scientist simply collects data about two or more variables in order to examine their relationship. For example, information may be gathered from employees or other groups regarding their beliefs, opinions, attitudes, motivations, and behaviors. These data are usually obtained by means of questionnaires or interviews or from organization records. The relationship among variables is usually measured by the use of a coefficient of correlation to be discussed in the following section. Even if a sizable relationship exists, cause-and-effect inferences are impossible to make—since one cannot be sure whether variable A caused B, B caused A, or they were both caused by some third variable (C) or combination of other variables (C, D, and E). Despite this weakness, correlational research is used frequently in the study of organizations, since there are many situations in which behavioral scientists are unable to manipulate variables.

Correlation coefficient

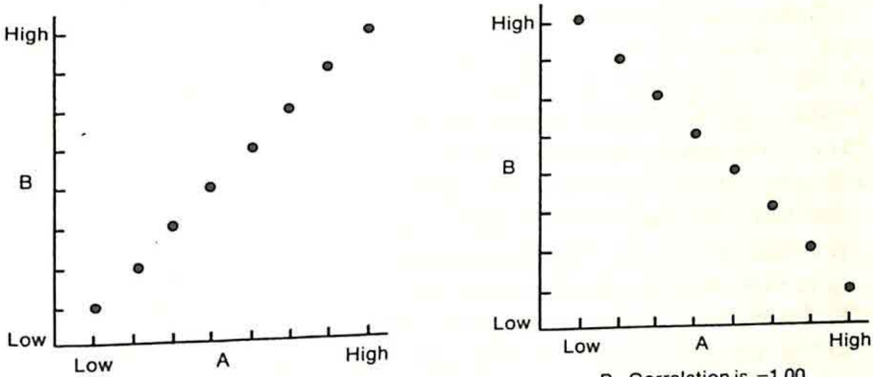
There are many different types of correlation coefficients available depending upon the shape of the relationship between the two variables (i.e., linear or curvilinear) and the form (i.e., continuous or dichotomous) of the data. The most common type of correlation employed in behavioral research is the well-known Pearson product-moment correlation coefficient (r), which is used when both the A and B variables are continuous and linearly related. This correlation coefficient can vary between $+1.00$ and -1.00. A positive correlation means that an individual who is high on variable A is likely to be high on variable B. Conversely, negative correlation means that an individual with a high score on variable A is likely to have a low score on variable B. When $r = 0.00$, no relationship exists between the two variables. Figure 1–2 shows scatter plots for various degrees of relationship between two variables, A and B. Each dot in the figure represents one individual who has been measured on variables A and B. The figures show plots five different degrees of correlation between variables A and B. The specific procedures for computing the Pearson product-moment correlation coefficient can be found in any basic statistics text. The important thing to realize at this point is that we will be using the correlation coefficient throughout this textbook. For example, it will be used to measure the reliability of a test, the validity of a predictor, and the degree of association between job satisfaction and job performance.

DIFFICULTIES IN CONDUCTING ORGANIZATIONAL RESEARCH

The primary function of behavioral scientists in dealing with organizational problems is to bring to bear knowledge that can be used in solving these problems. Without scientific research, there would be no sound knowledge to apply in solving problems. Knowledge based merely on intuition and common sense would prevail. What then are some of the difficulties and obstacles that scientists encounter when performing their important research function in organizational settings?

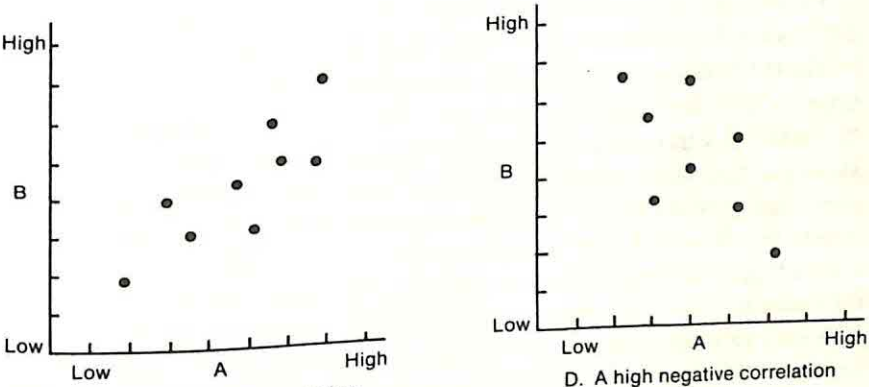
Organizational problems such as interdepartmental conflict and ineffective management rarely develop overnight. In fact, such problems may take years to become evident. By the time the scientist is contacted, immediate solutions are not possible. Nevertheless, scientists are frequently handicapped in their attempts to resolve organizational problems by some managers who insist on quick results. For example, one of the authors was called into an organization as a consultant to reduce what management felt was excessive turnover, absenteeism, and

FIGURE 1–2
Scatter plots for five different degrees of correlation between variables A and B (each dot represents one individual)



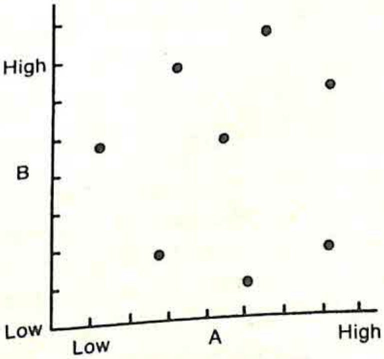
A. Correlation is +1.00

B. Correlation is −1.00



C. A high positive correlation

D. A high negative correlation



E. Correlation is 0.00

sabotage. An analysis of survey data revealed that the problem was the result of poor supervision, defective raw materials, and ineffective selection procedures. Plant management expected this complex problem to be completely resolved within three months.

Management often decides in advance what is wrong and then calls in a scientist to solve "our selection problem" or "our communication problem." The consultant, like the physician, cannot prescribe a cure on the basis of the patient's self-diagnosis. The scientist must take the time to make a personal examination, since often the problem may be something other than what management thinks it is. This, of course, takes time and may even embarrass the very managers who contacted the consultant in the first place. As an example, one company with a high turnover rate decided their selection procedure was to blame. Careful review of the situation by a consultant revealed that a large percentage of the employees who were terminating were women whose husbands were called back to work after being laid off for quite some time at a nearby steel mill.

Behavioral science has made large contributions to solving many organizational problems. These contributions can be expressed in such terms as increased productivity, reduced absenteeism, reduced training time, and better quality products. No matter how impressive these contributions have been, it must be realized that scientists cannot solve all of the problems of today's organizations. We have no bag of tricks or special powers that will make all problems disappear. There is still much we do not know and much we cannot handle. After all, our measuring instruments (e.g., tests, rating scales, questionnaires) are far from perfect, and we can only partially explain or predict human behavior in organizations. It is important for managers to realize these limitations as well as our contributions. Otherwise, it will be easy for managers to become the prey of unscrupulous individuals who sell their services to organizations, make their money, and get away before the company realizes that it has been promised something the consultant could not possibly deliver.

AN OVERVIEW OF THE BOOK

The contents of the book are drawn primarily from two distinct areas, namely, organizational behavior and personnel psychology. Both areas are directly relevant for understanding and improving the effectiveness of organizations. The next 12 chapters of this book (Part 1) are concerned with the study of organizational behavior. Chapters 2 and 3 review the theoretical and empirical literature on employee motivation, attitudes, and satisfaction. Chapter 4 presents some of the key concepts and research findings on communication processes within organizations. Chapter 5 reviews research and theory concerning individual and organizational decision making. Chapter 6 provides a general understanding of group processes, including decision making in groups. Chapter 7 looks at the nature of effective leadership, theories of leadership, and the practical implications of leadership research for improving this vital process in organizations. Chapter 8 examines the consequences of conflict for organizations, the antecedent conditions leading to conflict, typical reactions to conflict by the parties directly involved, type of intervention by third parties, and the implications for effective management of conflict. Chapter 9 discusses the sources of power in organizations, how power is exercised, the conditions under which political behavior is most prevalent, and the consequences of political behavior. Chapters 10 and 11 discuss the nature and design of effective organizations. Chapter 12 discusses organization development that involves change programs broader in scope than the training methods discussed in Chapter 17. We examine the process of organizational change as well as some of the more popular intervention strategies being used today.

In Part 2 of the book (Chapters 13 through 18) we have covered what we believe are the most interesting and useful topics from the area of personnel psychology. Chapter 13 sets the stage for the remaining chapters by discussing the challenging task of developing adequate methods of appraising an employee's job performance. Chapters 14 and 15 are devoted to one of the most important functions of any organization, the proper selection and placement of personnel. Among the topics we cover in these two chapters are recruitment, job analysis, selection methods, validation procedures, approaches for making hiring decisions, and equal employment opportunity legislation. Chapters 16 and 17 are devoted to the problems, methods, and research literature dealing with the ways in which we can identify training needs, design training and management development programs, and evaluate the programs properly.

Finally, in Chapter 18 we discuss various aspects of the work environment that can affect employee performance and/or satisfaction. Examples of topics covered in this chapter are robotics, shift work, compressed (i.e., four-day) workweek, and open-space offices.

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Part 1

Organizational behavior

2

Employee motivation to work

Motivation is usually defined as the process by which behavior is energized and directed. Despite its intuitive appeal, the concept of motivation has been a very troublesome one for psychology. One reason for this is that motivation is not directly observable. It is a hypothetical process that can only be inferred by observing people's behavior, measuring changes in their performance, or asking them to describe their needs and goals. Although there are a few physiological needs—such as hunger and thirst—that can be aroused through deprivation, most of the human needs that have been proposed cannot be readily manipulated in this fashion. Inferring motives from behavior is difficult because behavior can serve more than a single motive, and the same motive can be manifest in different kinds of behavior. Inferring motivation from changes in performance is risky because performance depends on a person's ability and perception of job requirements as well as on motivation. Use of self-reports also has limitations since it is questionable whether people can accurately identify the nature and strength of their own motives. Some motives appear to be unconscious, and even conscious motives may not be revealed if a person is embarrassed about them or suspicious of the researcher.

Despite the difficulty of measuring motivation, it has proven to be an extremely useful concept for the analysis of behavior in organizations. Hundreds of studies have been conducted to test various motivation theories and to evaluate different approaches for "motivating" employees. One objective of this chapter will be to review the major theories that have been developed to explain motivated behavior in organizations. We will also discuss the practical implications of these theories for increasing employee motivation. Finally, we will examine two kinds of programs for motivating employees, namely pay incentives and job enrichment.

MOTIVES RELEVANT TO BEHAVIOR IN ORGANIZATIONS

The concept of needs has been very useful in helping to understand human motivation. Except for a few physiological needs—hunger, thirst, and temperature control—most needs are greatly influenced by a person's early experiences. Consequently, the relative strength of various needs differs from person to person. Because of the difficulty in measuring motivation, psychologists do not agree entirely on the identity and importance of various needs which differ from person to person. However, there is some agreement that the following six needs are meaningful and useful for understanding motivation in work organizations (see Table 2–1).

Need for achievement

A person with a high need for achievement obtains satisfaction from experiencing success in accomplishing a difficult task, attaining a standard of excellence, or developing a better way of doing something. Some people learn to seek out and enjoy challenging tasks that test their competence, whereas other people never develop a strong need to achieve. Achievement motivation is distinct from need for esteem in that gratification depends on objective feedback about successful performance rather than on recognition of one's success by other people. A person with a strong need for achievement will enjoy challenging activities regardless of whether others recognize his/her accomplishments as worthwhile, and even a person who has all the esteem he/she desires will still be motivated by new challenges if the person has a strong need to achieve.

People with strong achievement motivation prefer tasks in which success depends on one's own effort and ability rather than on chance factors beyond their control. They desire concrete and frequent feedback about how well they are doing so they can enjoy the experience of making progress and attaining objectives. They enjoy competition with other people but are just as attracted by an opportunity to set new records or accomplish something never done before. They like a job in which they can exercise initiative in solving problems (McClelland, 1961, 1965).

Need for affiliation

Humans commonly have some desire for companionship and friendly interpersonal relationships in which affection and nurturance

TABLE 2-1
Summary of six key needs (forms of gratification for each need)

1. NEED FOR ACHIEVEMENT
   Doing better than competitors.
   Attaining or surpassing a difficult goal.
   Making a unique contribution.
   Solving a complex problem.
   Carrying out a challenging assignment successfully.
   Developing a better way.
2. NEED FOR AFFILIATION
   Being liked by many people.
   Being accepted as part of a group or team.
   Participating in pleasant social activities.
   Working with people who are friendly and cooperative.
   Maintaining harmonious relations.
   Avoiding interpersonal conflicts.
3. NEED FOR ESTEEM
   Being respected by people whose opinion you value.
   Receiving praise from coworkers and superiors.
   Receiving formal recognition for your contributions.
   Having high status and visibility in an organization or community.
   Collecting appropriate status symbols.
   Being treated like a celebrity or VIP.
4. NEED FOR INDEPENDENCE
   Assuming responsibility for your own life and how you lead it.
   Being free from control by authority figures.
   Reducing dependence on others for resources and support.
   Working without close supervision or elaborate restrictions.
   Being your own boss.
5. NEED FOR POWER
   Influencing people to change their attitudes or behavior.
   Defeating an opponent or enemy.
   Being in a position of authority over others.
   Gaining control over information and resources.
   Controlling people and activities.
6. NEED FOR SECURITY
   Having a secure job.
   Having protection against illness and disability.
   Avoiding hazardous working conditions.
   Being protected against physical harm by others.
   Being protected against loss of income and economic disaster.
   Avoiding tasks or decisions with a risk of failure and resulting blame.

are given and received. However, the strength of this need varies greatly from person to person. Someone with a strong need for affiliation is especially concerned about being liked and accepted and is very sensitive to cues indicating rejection or hostility from others. This person finds great enjoyment in social interaction with friends, such as at a party, reunion, or outing. This person also likes to work with other people as long as they are friendly and cooperative (Litwin & Stringer, 1966).

Someone who has a strong need for affiliation is usually unwilling to let the work interfere with harmonious relationships; such a person is more concerned with "getting along" than with "getting ahead." Conflict is avoided whenever possible, and when it occurs, the person tries to smooth things over rather than confront genuine differences. A person with strong affiliation needs who is in a position of authority will try to avoid making unpopular demands on subordinates. This kind of person is likely to permit exceptions to rules and dispense rewards as a way of winning and keeping friends (McClelland & Burnham, 1976).

Need for esteem

People typically have some desire to be respected and appreciated, but this need for esteem may be relatively weak for those people who judge themselves primarily in terms of some inner standards, such as a moral code or religious conviction. In contrast, those people who judge their self-worth primarily by what others think of them usually have a strong need for esteem. The need for esteem is satisfied by other people through provision of praise, formal recognition of the person's accomplishments (e.g., honors, awards, applause, testimonials), and by awarding of status symbols. Sometimes this need can only be satisfied by gaining the respect of persons whose opinions are valued, such as professional colleagues and co-workers.

Need for esteem is sometimes referred to as an "ego need." People with very strong ego needs are sensitive to cues indicating possible disrespect or criticism. They are likely to be upset if they believe they have not been given appropriate status symbols for their position in the status hierarchy of the organization. They will seek out praise and will tend to be upset if praise is not forthcoming when they believe it is justified.

People with strong ego needs may also seek to satisfy them by gaining fame, social position, membership in prestigious groups, and pursuit of high-status occupations. Public speaking, acting, and performing in front of a live audience are also ways to satisfy esteem needs—if the audience shows appreciation.

Need for independence (autonomy)

Infants are completely dependent on adults for satisfaction of their physiological needs. As a child grows older, an internal conflict develops between the comfort of having others take care of you and the frustration of being controlled by the people on whom you depend. As people approach adulthood, they become increasingly independent and assume more responsibility for running their own lives. Nevertheless, people differ greatly in the extent to which they desire freedom and in the way they have learned to react to authority figures (Haire, 1964).

People with a high need for independence want to have a great deal of freedom and autonomy in their lives. They distrust authority figures and become very upset when authority figures attempt to impose restraints and restrictions on his behavior. On the job, these people prefer to be left alone to do their work without close supervision or meddling by superiors. They may also resent being dependent on others for provision of resources and support. Many persons with a high need for independence prefer to be their own boss and become entrepreneurs and managers of their own business (Collins, Moore, & Unwalla, 1964).

Most people end up with some mix of dependence-independence preferences. However, people with low need for independence *never* develop a strong desire to "leave the nest" and "go off on their own." These people feel most comfortable when there is a parent figure to tell them what to do and to provide coaching and close supervision. A person's culture and family life influence the development of need for independence. Some cultures place a strong emphasis on obedience to parents and authority figures, whereas other cultures value freedom, rugged individualism, and a skeptical attitude toward authority figures.

Need for power

People differ in the extent to which they are eager to influence others. A person with a high need for power finds great satisfaction in influencing people and arousing strong emotions in them (e.g., fear, awe, pleasure, anger, surprise). A strong need for power can be satisfied in a variety of ways, including some vicarious ones, such as watching contact sports or seeing movies with a lot of violence and explicit sex. However, the most direct form of gratification of power needs is to exercise influence over the attitudes and behavior of people. Someone with a high need for power will enjoy winning an argument, defeating an opponent, eliminating an enemy, and directing the activities of others. These people are likely to be very sensitive to power politics in an organization and will attempt to develop their own power by building alliances and gaining control over budgets, resources, information, and projects. People with strong power needs usually seek out positions of authority (e.g., manager, administrator, public official, police officer, military officer) in which they can exercise influence more readily (McClelland, 1965; Winter, 1973).

Most people probably have only a moderate need for power. Persons with a very weak power need avoid positions of authority and feel very uncomfortable exercising influence over others. Such people are usually not very assertive, or they may sincerely believe that it is improper to tell others what to do.

Need for security

Everyone has some interest in avoiding physical harm and economic disaster, but some people worry about this much more than others. A person with a strong need for security is likely to worry frequently about such things as illness, accidents, crime, natural disasters, wars, and depression. This kind of person will be especially concerned about job security and loss of income. The person is likely to seek out a secure job where there is little chance of layoffs or dismissal. Such features of a job as tenure protection, long-term employment contract, guaranteed salary, health insurance, disability insurance, and the pension plan will be especially attractive to someone with a strong need for security.

In a job situation in which a person could be dismissed for incompetence, people with strong security needs will worry about losing their jobs and will take great care to "cover their asses." They will avoid making decisions for which they could be held accountable. They will rigidly observe rules and regulations, rather than showing any initiative in dealing with problems. They will also try to avoid tasks and assignments involving a definite risk of failure and for which any failure would be very visible.

In contrast, the person with a very low need for security will seek out dangerous and risky activities just to experience the excitement these activities provide. These people tend to have little regard for their own health and safety and may even believe that they are nearly immune to serious accidents or economic disaster.

Relationship among needs and joint effects

The six key needs are distinct from each other, but they are not entirely independent. That is, some combinations of needs tend to occur more often than others. For example, people with a high need for esteem are more likely to have a high need for power than a low need for power. People with a high need for independence or a high need for achievement are unlikely to have a high need for security, since these needs are somewhat incompatible. People with a very low need for achievement are likely also to have a high need for security, since both involve fear of failure. These combinations do not always occur, but they occur in a majority of cases.

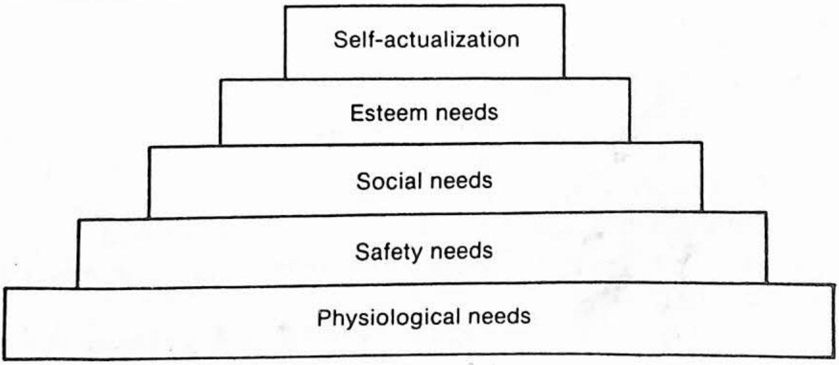
The manner in which a need is expressed depends on the person's overall pattern of needs. The various needs are integrated with each other and with the person's values and beliefs. To understand a person's motivation, it is necessary to consider the total pattern of needs in relation to the person's situation.

To give some examples, people with strong needs for both power and achievement will be happy in managerial roles where they use their influence to build the organization and further its goals. In contrast, people with strong needs for power and esteem are likely to use their influence to promote personal prestige and reputation rather than organizational goals. A person with a strong need for power and security is likely to be somewhat of a paranoid leader who worries about eliminating enemies and crushing dissent. A person with strong needs for power and independence is likely to establish his/her own organization (e.g., business, religious cult, political group) in which he/she will be the ultimate authority figure. Of course, not everyone is able to satisfy these needs, and the extent to which gratification is possible depends on other factors, such as the available opportunities and the person's skills and abilities.

NEED HIERARCHY THEORY

If humans have many different needs, how many of these needs are active at the same time? Are some needs more important than other needs? Maslow (1954) formulated a "need hierarchy theory" to answer such questions as these. According to Maslow, there are five different classes of needs: physiological needs, safety needs (i.e., security), social needs (i.e., affiliation), esteem needs, and need for self-actualization. Maslow proposed that these needs are common to all humans and are arranged in a hierarchy of prepotency, as depicted in Figure 2–1. At any point in time, only the lowest unsatisfied need in the hierarchy controls a person's behavior. After this need is mostly satisfied, it declines in importance and the person's behavior is then controlled by the next unsatisfied need in the hierarchy. Thus physiological needs must be mostly satisfied before safety needs will assume a potent influence over behavior. Safety needs must be mostly satisfied before social needs will become important, and so on. The last need to be activated is self-actualization, and Maslow suggests that few people

FIGURE 2–1
Maslow's need hierarchy



ever reach this step in their need hierarchy. Self-actualization can be defined as the need to grow and develop psychologically, to find one's identity and realize one's potential. Self-actualization is a "growth need" that is never completely satisfied. If a person is successfully fulfilled in one way, that individual will then see other avenues of self-development and self-expression.

Numerous writers have stopped here in their description of Maslow's theory. In doing so, they have incorrectly interpreted Maslow's theory as being invariant across individuals. To interpret the theory in this manner makes it easier to research, but this is not what the theory says as shown by the following statement by Maslow (1943):

> . . . most members of our society who are normal are partially satisfied in all their basic needs and partially unsatisfied in all their basic needs at the same time. A realistic description of the hierarchy would be in terms of decreasing percentages of satisfaction as we go up the hierarchy of prepotency. For instance, if I may assign arbitrary figures for the sake of illustration, it is as if the average citizen is satisfied perhaps 85 percent in his physiological needs, 70 percent in his love needs, 40 percent in his self-esteem needs, and 10 percent in his self-actualization needs (pp. 388–389).

Furthermore, Maslow postulated that the expected prepotency relationships among the five need categories do not hold for all individuals (Maslow, 1954). For example, for the long-term unemployed, higher-level needs may become deadened permanently. Another exception sometimes occurs among people whose lower-level needs have been long satisfied. Such people have sometimes assumed a martyr role (e.g., India's Gandhi) in which they accept the deprivation of lower-level needs in the interests of satisfying higher-level needs (Miner, 1980).

Research on need priorities

Since Maslow's theory is so widely known, many people assume that is has been well validated. However, a review of relevant research concludes that there is actually very little support for the theory (Wahba & Bridwell, 1976). There is some evidence that physiological needs take precedence over other kinds of needs, but there is no good evidence that the other needs are activated in the order proposed by Maslow (Hall & Nougaim, 1968; Lawler & Suttle, 1972). Furthermore, the concept of "self-actualization" is poorly defined, and there is little reason to believe that self-actualization exists as a separate and distinct human need.

Research on human needs indicates that the relative importance of a person's needs fluctuates over time. As one need is temporarily satisfied, other needs become important. Nevertheless, there is no sound basis for the hypotheis that only a single need will be activated at a given time, as Maslow proposes. Rather, it is generally accepted that a person's behavior can be influenced by several needs simultaneously. Sometimes these needs are compatible and can be satisfied together; but at other times they are incompatible, and a person must decide which to satisfy and which to ignore. An example of a conflict between needs is provided by the employee who wants to earn more money under an incentive program but would be socially rejected by coworkers if he or she became a "rate buster" (i.e., someone who produces more than the group norm).

Practical implications

Even though need hierarchy theories, such as the one proposed by Maslow (1954), are not very well substantiated, the proposition that some needs take priority over other needs appears to be a valid one. This proposition has important practical implications. An organization cannot improve employee motivation to work or increase job satisfaction until it discovers what needs are currently important to each employee. For example, if an employee is primarily concerned about job security or with earning an adequate income on which to live, the employee is not likely to be motivated by recognition or job enrichment. Conversely, more health insurance or safer working conditions will not increase the motivation or satisfaction of an employee whose security needs are already fulfilled. The motivational programs in an organization should be flexible enough to accommodate individual differences in needs and possible changes in employee need priorities over time. Available methods for measuring employee motives are discussed in Chapter 13.

PROCESS THEORIES OF MOTIVATION

To postulate that a person has certain needs does not by itself explain why the person will try to perform at a superior level rather than at an average or substandard level. The amount of effort a worker exerts in a job depends on certain aspects of the job situation as well as on the person's needs. The manner in which needs and situational variables jointly determine a person's behavior is the subject of various "process theories" of motivation. Three of the most promising of these process theories are (1) drive-reinforcement theory, (2) expectancy theory, and (3) goal theory.

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Drive-reinforcement theory

The ancient principle of "hedonism" states that people try to maximize pleasure and avoid pain. Thorndike (1911) proposed the "law of effect" to explain how the experience of pleasure and pain influences later behavior. The law of effect states that responses followed closely by pleasurable outcomes (rewards) are strengthened and will be more likely to occur again in the same situation, and responses followed closely by unpleasant outcomes (punishment) are weakened and will be less likely to occur again in the same situation. Hull (1943) further elaborated this explanation by differentiating between the directing of behavior and the energizing of behavior. Energizing was attributed to various physiological *drives* (like needs), and directing was attributed to the joint effects of drives and *habits*. A habit is the association formed between a response and a specific stimulus as the result of reinforcement in the form of pleasant or unpleasant outcomes. According to drive theory, habits will be strongest when: (1) reinforcement occurs quickly after the response is made, (2) the experience of reinforcement is repeated many times, and (3) the magnitude of the reinforcer (i.e., the reward or punishment) is large.

REWARDS VERSUS PUNISHMENT Research on *behavior modification* suggests that reinforcement of behavior with rewards is usually more effective than reinforcement with punishment. Use of punishment often has certain unfavorable side effects, such as disruptive anxiety, resentment, hostility, and withdrawal. Moreover, punishment can induce a person to stop making a particular response, but it usually does not increase the likelihood of making a correct response. In fact, unless an incorrect response is easily observed or detected, punishment may simply induce a person to make it in a manner designed to avoid the punishment. There are some occasions where the threat of punishment is appropriate, such as the suppression of behavior that recklessly endangers other people, but as a general rule, punishment should otherwise be avoided.

Skinner (1953, 1969) has proposed that behavior can be effectively modified by rewarding desired responses and ignoring undesired responses. If the person seldom or never makes the desired response, a process of "shaping" can be followed. Shaping means that a person is initially rewarded for any response that is similar to the desired response or is part of a desired response sequence. Then reinforcement is gradually limited to only the desired response or response sequence so that it will be learned.

SCHEDULES OF REINFORCEMENT Skinner (1938, 1969) and his followers have discovered that the effects of reinforcement depend in part on the "schedule of reinforcement" experienced by an organism. In other words, behavior is influenced by the pattern of repeated reinforcements as well as by the magnitude and immediacy of reinforcement. With a *continuous reinforcement schedule* the reinforcement occurs every time the correct response is made. With a *partial reinforcement schedule* the reinforcement occurs only after a certain number of correct responses have been made or a certain interval of time has elapsed since the previous reinforcement. The number of correct responses or the amount of time between reinforcements may be constant, or it may vary around some average value. One example of partial reinforcement is a variable interval schedule. With this schedule, a correct response (e.g., coming to work on time) is reinforced randomly a predetermined percentage of the times it is made. A person on a 25 percent variable interval schedule would be reinforced on one out of four of the days he comes to work on time, but he would not know in advance on which days the reinforcement would occur.

Research on Reinforcement Hundreds of studies with animals have shown that both continuous and partial reinforcement schedules can be used to maintain a high rate of responding (Skinner, 1938, 1969). Research with humans yields similar results, although only a few systematic studies have been conducted with employees in formal organizations (see review by Hamner & Hamner, 1976). Pay incentives for performance are a form of behavior modification, and studies of pay incentive programs have found that they often result in higher productivity (Lawler, 1971). In a series of studies on pay incentives, Yukl and his colleagues (Yukl & Latham, 1975; Yukl, Latham, & Pursell, 1976; Yukl, Wexley, & Seymour, 1972) compared the effectiveness of various schedules of reinforcement. Employees who were paid based upon how much they produced were consistently more productive than those paid on a fixed-interval (i.e., hourly pay) schedule. Pritchard, Leonard, Von Bergen, and Kirk (1976) found similar results in a training setting. They compared the effect of various payment schedules on employees' rate of passing self-paced learning tests of electrical knowledge. Trainees paid on a flat hourly rate passed only 40 percent of the learning tests compared with 60 percent of the learning tests passed by employees paid contingently (i.e., based upon their performance).

Several studies have reported the successful application of reinforcement principles in the modification of other aspects of employee behavior besides their work performance. Three studies found that money or prizes contingent on perfect attendance during a specified time interval (e.g., a week or a month) resulted in lower absenteeism (Lawler & Hackman, 1969; Nord, 1970; Pedalino & Gamboa, 1974). Another study found that a monetary reward for punctual attendance reduced the frequency of tardiness for employees who previously had a record of chronic tardiness (Hermann, DeMontes, Dominguez, Montes, & Hopkins, 1973). Clerks in a small grocery store were trained to improve performance on three desired behaviors: remaining in the store, assisting customers, and stocking merchandise (Komacki, Waddell, & Pearce, 1977). The training involved clarifying the desired behaviors and their rationale during an initial half-hour session. Trainees were also given time off with pay whenever they exhibited 90 percent or more of the desired behaviors. Further, they were given feedback on their progress in the form of graphs posted periodically on the bulletin board by the trainer. The clerks also learned to give themselves feedback by recording on a checklist whether or not they had exhibited the desired behaviors. In another study, employees in a food-manufacturing plant were trained to improve their safety performance by using frequent, low-cost reinforcement in the form of feedback from supervisors regarding their behaviors. Not only did employees react favorably to the program, but the organization was able to maintain the program with a continuing decline in the injury frequency rate (Komacki, Barwick, & Scott, 1978).

At Emery Air Freight performance feedback and praise have been used to shape and reinforce appropriate job behavior (ANACOM, 1973). Supervisors were provided with training workbooks explaining how to administer feedback and positive reinforcement. The supervisors were urged to reinforce desirable behavior at least twice a week in the beginning, then gradually reduce the rate of reinforcement so that praise would be less frequent and less predictable. In one example, employees who load freight containers were given individual feedback about the percentage of times containers were utilized to capacity, and improvement was praised. Container utilization increased from 45 percent to 95 percent, resulting in a substantial cost savings.

PRACTICAL IMPLICATION Drive theory and the results from reinforcement research have a number of practical implications for motivating employees in organizations (Jablonsky & DeVries, 1972; Nord, 1969).

1. Determine and specify what behavior is correct or desired.
2. Positively reinforce the correct behavior, using shaping if necessary to develop the desired responses.
3. Ignore undesired or incorrect behavior rather than punishing it, unless there are serious consequences.
4. Avoid excessive delay in reinforcement of correct behavior so that the behavior-reward contingency is evident.
5. Determine what schedule of reinforcement and type of reinforcer are appropriate for the individual and the situation to maintain the correct behavior after it is learned.

Before leaving this topic, it should be noted that some practitioners and authors (e.g., Whyte, 1972) have questioned drive-reinforcement theory for ethical reasons. They argue that piece-rate systems "control" the employee's behavior and damage the individual's mental and physical well-being. They point to the fact that individuals paid on a hourly basis often report being more satisfied with their work than do piece-rate workers (Pritchard, Hollenback, & DeLeo, 1980). The authors see nothing objectionable about paying employees contingent upon their job performance as long as the system of rewards is made clear and administered fairly.

Expectancy theory

Expectancy theory is a variation of early cognitive theories and decision theories developed by scholars in a variety of disciplines (see Mitchell, 1980). According to expectancy theory, a person's behavior reflects a conscious choice based on a comparative evaluation of different behavior alternatives. Although a number of versions of the theory have been proposed (Campbell, Dunnette, Lawler & Weick, 1970; Georgopolous, Mahoney & Jones, 1957; Graen, 1969; Porter & Lawler, 1968; Vroom, 1964), they share certain basic features. Each version proposes that a person will choose a behavior alternative that is likely to have favorable consequences. In this respect, expectancy theory is an extension of hedonism, as was drive theory. However, although drive theory explained behavior in terms of the mechanical triggering of learned habits by various external and internal stimuli, expectancy theory postulates a deliberate and rational choice process.

SIMPLIFIED MODEL A simplified version of expectancy theory will be presented before considering the more complex refinements. The key concepts in the theory are (1) outcome, (2) valence, and (3) expectancy. An outcome is any potential need-related consequence of behavior. Outcomes in a work context include such things as a pay increase, promotion, recognition, job retention or dismissal, intrinsic satisfaction from accomplishment, co-worker acceptance, fatigue, illness, and accidents. The valence of an outcome is the degree to which it is desirable or undesirable. The expectancy of an outcome is the perceived probability that it will in fact occur if a given behavior alternative is chosen. The attractiveness of a behavior alternative depends on the expectancies and valences of the outcomes associated with the alternative. A numerical score can be computed for the attractiveness of a behavior alternative by multiplying the expectancy of each outcome by the valence for that outcome ($E \times V$) and then summing the resulting products. According to the theory, a person will choose the behavior alternative with the highest attractiveness score.

An example is presented in Table 2–2. A worker is trying to decide whether to violate a safety rule in carrying out an assignment. If he

TABLE 2–2
Hypothetical example of expectancy theory

Need-related outcomes	Outcome valence	*Observe rule*		*Violate rule*	
		Expectancy	*E × V*	*Expectancy*	*E × V*
Have an accident	− 50	.00	0	.20	− 10
Get fired	− 80	.05	− 4	.10	− 8
Earn more money	+ 50	.10	+ 5	.80	+ 40
Attractiveness of alternative (sum of $E \times V$):			+ 1		+ 22

violates the rule, he will be able to finish the job faster, which would allow him to earn more money. On the other hand, violating the rule may result in an accident, and if he is caught, he may be fired. On a valence scale ranging from + 100 (most desirable) to − 100 (least desirable), earning more money is quite desirable, and having an accident or getting fired is very undesirable. Will the worker observe the safety rule? According to expectancy theory, the more attractive alternative in this example is to violate the safety rule.

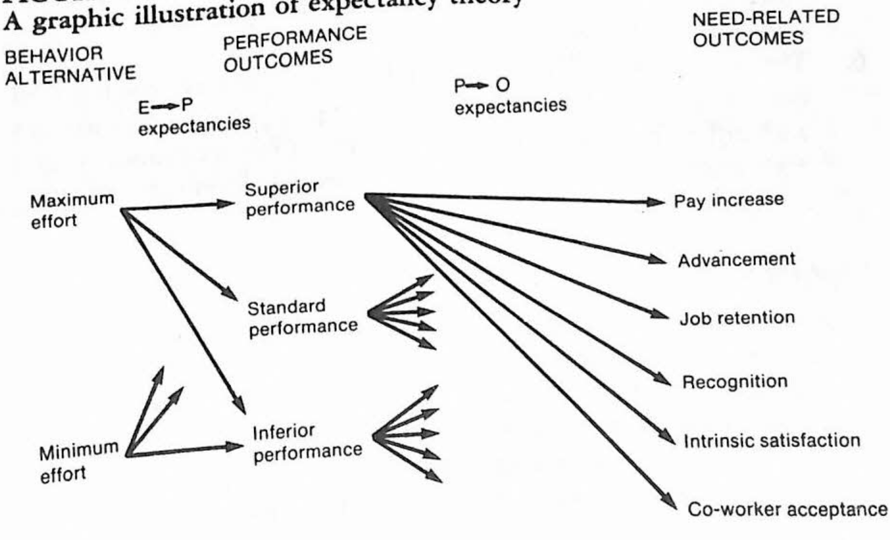
Extended Model The theory becomes more complicated if the behavior alternatives are not obviously discrete, as in the case of an employee trying to decide how much effort to exert or how high a performance goal to set. Since effort level and goal level are continuous variables, how many alternative levels will the employee consider when deciding how to behave? In this case it is usually assumed that a person will simplify the decision problem and consider only a few alternatives. For example, an employee may only consider making a maximum effort, a moderate effort, or a minimum effort.

When used to predict employee effort, most versions of expectancy theory differentiate between two types of outcomes. A "first-level outcome" is performance related. That is, a first-level outcome is some specific quantity of output or some specific level of performance quality. A first-level outcome may also be expressed as performance relative to the performance of other employees, as for example being the "best performer" in the group. A "second-level outcome" is need related, just as the outcomes in the simplified model described earlier. The distinction between two kinds of outcomes was made because many need-related outcomes are contingent upon a performance outcome rather than on effort itself. For example, a sales representative does not get a commission for trying hard to sell products, only for actual sales. In this case, two kinds of expectancies must be considered in determining the attractiveness of a behavior alternative. First, there is the perceived probability that a given effort level will result in the successful attainment of a certain performance outcome. This is referred to as an "E → P expectancy." Second, there is the perceived probability that the performance outcome will lead in turn to the attainment of a need-related outcome. This is referred to as a "P → O expectancy." The distinction between the two types of expectancies is defended on the grounds that they are determined by different conditions. The expectancy that effort will lead to a performance outcome depends in part on a person's ability, the difficulty of the task, and the person's self-confidence. The expectancy that a performance outcome will lead to the attainment of a need-related outcome depends on a person's perception of the reinforcement contingencies existing in the organization.

The attractiveness of a behavior alternative in the extended version of expectancy theory depends on both kinds of expectancies as well as on the valences of the need-related outcomes. A graphic description of the extended model is shown in Figure 2–2. In this example, only two behavior alternatives are being considered.

Research Evidence Research on expectancy theory provides some support for the theory. However, the results have not been entirely consistent from study to study (Heneman & Schwab, 1972; House, Shapiro, & Wahba, 1974). The lack of consistency may be due to the use of an inappropriate research design for testing the theory in most of the earlier studies. These studies used an "across-subjects" design in which the attractiveness to an individual of exerting a high level of effort on the job is correlated with actual effort or performance. A more appropriate research design for testing the theory is known as the "within-subjects" design. Here, the attractiveness of different tasks to an individual is correlated with the amount of effort expended on each task, or with the choice of a task to be performed. If an employee has

FIGURE 2–2
A graphic illustration of expectancy theory



only a single task, the within-subjects approach may involve the prediction of effort or performance from an examination of the differential attractiveness of high- and low-effort levels to the employee. In general, the within-subjects research provides moderately strong support for expectancy theory (Matsui, Kagawa, Nagamatsu, & Ohtsuka, 1977; Muchinsky, 1977). Nevertheless, expectancy theory, like the rational-choice decision theories on which it is based (see Chapter 5), makes some unrealistic assumptions about the way humans process information and make choices. Expectancy theory is in need of further refinement to more accurately depict the way in which humans typically simplify decision making.

PRACTICAL IMPLICATIONS Expectancy theory has several practical implications for motivating members of an organization.

1. The organization should develop appropriate procedures for evaluating employee performance.
2. An incentive program should be established with monetary and other kinds of rewards contingent upon superior performance by employees.
3. The organization should minimize any undesirable outcomes (e.g., layoffs, accidents) that employees may perceive to be a result of superior performance.
4. Employees should not be assumed to have an accurate perception of reward contingencies. The reward contingencies should be explained in a manner that will ensure accurate $P \rightarrow O$ expectancies.
5. The organization should ensure that each employee has a high $E \rightarrow P$ expectancy by providing adequate training, making job assignments appropriate to an employee's ability, and eliminating obstacles to effective performance (see the path-goal theory of leadership in Chapter 7).
6. The valence attached by an employee to potential need-related outcomes should be investigated by the organization, since this will differ from employee to employee. Only outcomes with a high valence for employees should be used as incentives for superior performance.

Goal theory

Another motivation theory that explains employee behavior in terms of conscious mental processes is "goal theory." This theory, as formulated by Locke (1968), is an extension of Lewin's (1935) "level of aspiration" concept and Ryan's (1958) proposition that task characteristics influence goals and behavior. Locke's basic premise is that a person's behavior is regulated by the individual's goals and intentions.

According to the theory, goals mediate the effects on behavior of task characteristics, incentives, supervision, and performance feedback. Goal difficulty and a person's commitment to attain a goal jointly determine the level of effort that will be expended. Specific goals—such as a certain level of performance or a definite deadline for the completion of an assignment—will have a greater effect on performance than will generalized goals—such as "do your best" or "finish as soon as possible." Hard goals will result in higher performance than will easy goals, as long as the goal is actually accepted by the employee.

RESEARCH EVIDENCE Locke (1968) and his associates have conducted a large number of laboratory studies to test the theory, and these studies provide strong support for it. Field studies conducted in actual organizations also provide evidence in support of the theory (see review by Latham & Yukl, 1975). Setting specific goals has resulted in higher productivity for a variety of different kinds of employees, including salespeople, truck drivers, office workers, logging crews, production workers, and managers. In studies where the effect of goal difficulty was investigated, hard goals usually resulted in better performance than did easy goals. A review of 110 laboratory and field studies on goal setting during the period from 1969 to 1980 revealed that in 90 percent of the studies, specific challenging goals led to higher performance than did easy goals, general "do your best" goals, or no goals (Locke, Shaw, Saari, & Latham, 1981). Studies attempting to explain how goals affect performance find evidence that goals direct attention, mobilize effort, increase persistence, and induce employees to develop better performance strategies. However, these mediating processes are still not very well understood. More research is needed on this aspect of goal theory and on such other relevant questions as the implications of individual differences (e.g., needs, self-confidence), the interactive effects of multiple goals in the same job, and the most useful timing and form of performance feedback.

PRACTICAL IMPLICATIONS The findings in research on goal setting have the following practical implications for motivating members of an organization:

1. Employees should have specific performance goals to maintain motivation and guide their behavior.
2. The goals can be assigned by a supervisor, or they can be set jointly by an employee and a supervisor. Employee participation in goal setting is recommended when acceptance of an assigned goal is unlikely (see the Vroom and Yetton leadership theory in Chapter 7 for further discussion of this subject).
3. The goal should be set at a level that is perceived by the employee to be challenging but not impossible to attain.

4. Accurate performance feedback should be provided so that progress can be determined and goals can be revised if necessary.

MOTIVATING EMPLOYEES

The practical implications of drive-reinforcement theory, expectancy theory, and goal theory are generally compatible. Together the three theories provide considerable insight into the way a person's behavior is jointly determined by needs and perception of the situation. These theories can be applied together in the development of programs to improve employee motivation to work. Three major types of motivational programs are (1) pay incentive plans, (2) job enrichment, and (3) management by objectives. The latter program will be discussed in Chapter 12, since it incorporates principles from the chapters on performance appraisal (Chapter 13) and leadership (Chapter 7) as well as motivational principles.

Pay incentive programs

Pay incentive programs make some portion of each employee's compensation contingent on the employee's performance.

TYPES OF INCENTIVE PLANS The types of incentive plans that are most commonly used in organizations include: merit pay increase, individual performance bonus, individual piece rate or commission, group performance bonus, and profit sharing. A *merit pay increase* is simply an increase in the hourly rate or salary of an employee as a reward for superior performance. A *performance bonus* is a cash payment for superior performance during a specified time period. An incentive program that uses bonuses can establish a closer contingency between performance and pay than can a program that uses merit pay increases (Lawler, 1971). Since merit increases are seldom revoked, an employee who has been given a merit pay increase will continue to receive this higher level of pay, even if his/her performance subsequently deteriorates. With a bonus plan, if performance declines, the amount of the next bonus will also decline.

Individual *piece rates* are based on an employee's output. The employee receives a set amount of money for each unit of output above some standard or quota. An individual *commission* is similar to a piece rate, but it is used with sales personnel rather than production personnel. The employee receives a percentage of sales volume as a reward for successful sales. In some cases, the commission can only be earned on sales that exceed a specified quota.

With a *group performance incentive,* the reward is based on a measure of the group's performance rather than on the performance of each individual member. Members of the group share the reward equally or in proportion to their regular pay rates. A group incentive is more feasible than individual incentives when employees work together as a team on interdependent tasks. In this situation it is difficult to measure an individual's performance because each person is dependent on the other members of the group. Even in a situation in which individual performance can be measured, a group incentive may be preferable if individual incentives would create harmful competition among employees. For example, in one department store, an individual incentive based on sales volume created conflict among the sales personnel. Each sales person tried to "tie up" customers or to steal customers from other employees. Important duties not covered by the incentive were neglected, including taking care of stock and displays. When the individual incentive was replaced by a group incentive, these problems were resolved and employees were more satisfied (Babchuk & Goode, 1951).

As a supplement to individual and group incentives, an organization may also use an incentive plan based on overall organizational performance. Two examples of this kind of plan are "cost reduction sharing" and "profit sharing." The "Scanlon plan" is based on cost reduction sharing, and it is described in Chapter 12. A *profit-sharing* plan distributes a part of the organization's profit to employees, usually in proportion to their salaries or according to their type of job. Profit sharing is not likely to have much influence on an employee's motivation, because the employee will not perceive any close connection between individual performance and the incentive (Lawler, 1971). For example, an employee whose performance is excellent would receive the same profit share as a similar employee whose performance is poor. Moreover, in a year when economic conditions are poor and the organization does not have any profits, an employee with excellent performance will not receive any profit share.

Limiting Conditions for Pay Incentives There are several requirements for a pay incentive program to be feasible as a means of improving employee performance or modifying employee behavior.

1. There is a behavior or performance problem that can be attributed in part to insufficient employee motivation.
2. Procedures can be developed to accurately measure this aspect of employee behavior or performance.
3. Employees are not prevented from attaining the desired performance level by extraneous factors beyond their control, such as insufficient knowledge, skill, equipment, supplies, and quantity of work.

4. Pay incentives can be made contingent upon the desired behavior or performance in a manner that is understood by employees.
5. Employees perceive the magnitude of the pay incentive to be large enough to be highly desirable and equitable.
6. Employees perceive the incentive plan to be basically beneficial rather than detrimental to their welfare.
7. The incentive plan would be economical to the organization; that is, the direct and indirect expenses of administering the program would not exceed the benefits.

It is obvious from the preceding list that there are some situations in which it is not feasible to utilize a pay incentive program. In those situations, the organization must rely on some other approach, such as effective supervision and job design, to motivate employees. Some of the limiting conditions for the use of pay incentives require further explanation and will be discussed in more detail.

EMPLOYEE ACCEPTANCE If employees mistrust management and expect higher productivity to have adverse economic consequences, they will not respond favorably to an incentive program. Mistrust is more likely to be a problem with nonsupervisory employees than with managers. Workers will probably try to restrict their output if they perceive that increased productivity will result in an eventual increase in the standard or quota, a reduction in the incentive rate, elimination of overtime, or layoffs due to insufficient work. These fears are sometimes realistic, but even when inaccurate, they are likely to nullify the positive motivational effects of an incentive. In some cases, employees fail to accept a pay incentive plan because it is too mathematically complex for them to understand how they will benefit (Yukl & Latham, 1975).

One approach for increasing employee acceptance of a pay incentive plan is to allow employees to participate in designing it. Lawler and Hackman (1969) conducted a study in which they found that an incentive plan was very effective in modifying the behavior of employees who participated in developing the plan, but it did not affect the behavior of employees who had not participated.

IMPORTANCE OF PERFORMANCE APPRAISAL The absence of an accurate and objective measure of performance for many kinds of jobs poses another obstacle to the introduction of an incentive plan. When it is necessary to rely on subjective ratings of performance because objective performance measures are not available, employees are more likely to suspect that the incentive is administered on the basis of favoritism or inaccurate judgments about performance. Studies have shown that most employees perceive themselves to be well above average in performance when their performance is not readily determined by an objective measure (Meyer, 1975). An incentive based on subjective ratings is likely to upset the majority of employees because they will get a smaller pay increase or bonus than they believe is justified. For these employees, the perceived link between performance and the incentive will tend to be very weak, and the incentive may fail to motivate better performance.

Even when there is an objective performance measure, an incentive plan can be weakened if the measure is contaminated by extraneous factors. For example, executives often receive a bonus based on company or division profits. Since profits are partly dependent on economic conditions, an executive may earn a large bonus in a year when profits are high for the entire industry, even though the profits of the executive's division were less than they should have been and the division lost ground to competitors (Patton, 1972). Thus when pay incentives are based on objective performance measures, it is sometimes advisable to use a composite of different measures (e.g., profits, share of market, profit growth, etc.), or to make adjustments to eliminate the influence of extraneous factors.

The performance measure upon which incentives are based should be inclusive of all relevant aspects of an employee's job. Otherwise, the employee is likely to neglect aspects of the job not reflected in the performance measure. For example, if the incentive is based solely on quantity of performance, quality may suffer. Incentives for managers should reflect long-term aspects of performance as well as short-term performance. When an executive's bonus is based only on short-term profits, he or she will be encouraged to increase these at the expense of future division performance by cutting such things as research, advertising, inventories, maintenance, and training (Patton, 1972).

Job enrichment

Job enrichment is an approach for redesigning jobs to increase intrinsic motivation and job satisfaction. *Intrinsic motivation* is a term used to describe effort that is expended in an employee's job to fulfill growth needs such as achievement, competence, and self-actualization. Jobs are enriched by allowing employees more responsibility, self-direction, and the opportunity to perform interesting, challenging, and meaningful work. The redesign of jobs usually includes such steps as the following:

1. Combine several jobs into a larger job involving a wider variety of skills.
2. Give each employee a natural unit of work ("work module") so he or she can complete a meaningful task.

3. Allow employees more responsibility for quality control and self-determination of work procedures.
4. Allow employees to deal directly with clients, support personnel, and persons performing related jobs.
5. Provide channels of performance feedback so that an employee can monitor and self-correct work behavior (Ford, 1973).

SCIENTIFIC MANAGEMENT The job enrichment movement is a reaction to the excesses of "scientific management." In the early part of this century, scientific management was widely acclaimed as a method of designing jobs effectively. Frederick Taylor (1911), a major proponent of scientific management, argued that jobs should be simplified and specialized. Efficient work procedures for these jobs should be determined by industrial engineers, and employees should be given detailed instructions in the use of these procedures to perform their work. The best example of the application of scientific management is the mechanized assembly line. Each worker on the assembly line performs one or two simple operations, and these operations must be repeated hundreds of times each day. The work is machine paced, and each worker must keep up with the line. Employees have no control over how the work is done; they are unable to vary their speed and are not allowed to rest except at specified times when someone is available to replace them.

The advantages promised by scientific management were appealing. Labor costs would be minimized because unskilled workers would be employed, and there would be little expense for selection and training. Furthermore, most workers could be easily moved around to other jobs as needed, since any job could be quickly learned. Control would be simplified because work procedures were standardized, and supervisors could readily determine whether workers were following these procedures. Specialization would increase each worker's efficiency, and simplification of work would practically eliminate the likelihood of errors and quality defects.

In actual practice, the benefits have not always been as great as anticipated. As workers have become better educated and their standard of living has gone up, it has become increasingly harder to find enough unskilled people who will accept these jobs, and even with higher wages, the turnover rate has often been excessive. Absenteeism and turnover for jobs in industries like automobile manufacturing have become an expensive problem, and quality of work has declined due to carelessness and deliberate sabotage.

CONSEQUENCES OF JOB ENRICHMENT Advocates of job enrichment predict that if simple, specialized jobs are redesigned to intrinsically motivate employees, the quality of employee performance will improve, and there will be less absenteeism and turnover. These predictions have been supported in many of the studies conducted to evaluate job enrichment programs (Davis, 1966; Ford, 1969, 1973; Lawler, 1969; Maher, 1971; Paul, Robertson, & Herzberg, 1969).

The implications of job enrichment for employee productivity are less clear, and the results for studies in which productivity could be measured are mixed (Griffin, Welsh, & Moorehead, 1981). Productivity depends on how rapidly employees work and how efficiently their effort is utilized. An increase in intrinsic motivation will not necessarily cause an employee to work faster. An employee who is trying to do high-quality work may produce a smaller quantity of output rather than a larger quantity after job enrichment. Efficiency, the other determinant of productivity, depends on several aspects of work organization and job design, including specialization, simplification, sequencing, workload balancing, and mechanization. Efficiency will begin to decrease at some point as jobs become more complex, less specialized, and less mechanized. However, certain jobs are "overspecialized," with unnecessary duplication of effort and excess idle time due to coordination problems or workload fluctuation. For these jobs, some reduction in specialization may actually improve efficiency. Thus the effect of job enrichment on productivity will depend on whether efficiency is increased or decreased and on the extent to which any reduction in efficiency is compensated by an increase in how fast employees work.

Even when the individual productivity of employees is not increased by job enrichment, there is likely to be some reduction in direct and indirect labor costs as a result of improved quality and lower absenteeism and turnover. Labor costs per unit of output will be lower if improved quality permits a reduction in the number of quality control personnel (e.g., inspectors) and a reduction in the number of worker-hours needed to correct errors or redo defective production. Lower absenteeism will probably permit a reduction in the size of the work force, and lower turnover will lead to a reduction in expense for recruitment and selection. The reduced labor costs reported in many of the job enrichment studies can probably be attributed more to these benefits than to higher individual productivity.

Examples of Job Enrichment Programs Job enrichment programs have been carried out in several major corporations in this country and in Europe, including AT&T, IBM, Texas Instruments, Philips N.V., Volvo, and Saab. Three representative examples of successful programs are described to demonstrate the kinds of changes that have been made to enrich jobs.

Directory clerks A job enrichment program for directory clerks at Indiana Bell Telephone Company was described by Ford (1973). Before enrichment, the compilation of telephone directories was laid out in 21 steps, such as manuscript reception, manuscript verification, keypunch, keypunch verification, ad copy reception, ad copy verification, and so forth. The directory clerks were indifferent about their jobs, and turnover was a serious problem. The first step in job enrichment was to have clerks check their own work, thereby eliminating seven verification steps. Next, certain clerks were allowed to compile their "own" directories, carrying out each of the remaining 14 steps. This change gave a directory clerk a complete "work module" to perform. Directories that were too large for a single clerk were divided up according to blocks of letters, and each clerk was allowed to carry out all of the 14 steps for her block. In the process of compiling their directories, the clerks were permitted to deal directly with salespeople, the printer, service representatives, and supervisors in other departments.

Sales representatives A job enrichment program for sales representatives in a British company was described by Paul, Robertson, and Herzberg (1969). The job was changed to give sales representatives more authority to make decisions and do business with the customer directly, without having to continually refer to headquarters. Sales representatives were no longer required to write reports on each customer call; they were given responsibility for determining how often to call on customers; they were authorized to handle customer complaints about product performance (e.g., buy back items, make cash settlements up to a predetermined amount); and they were allowed to set the price of most products within a predetermined range of discretion. After these changes were made, sales improved and profits were greater than those for a control group without the changes.

Truck assembly workers The following case illustrates the concept of a "semiautonomous work group." At a truck assembly plant owned by Volvo in Sweden, some of the traditional assembly lines have been replaced by production teams. There are 5 to 12 employees in each group, and they elect their own coordinator. The team members decide among themselves how the work will be divided up and distributed, and they are responsible for their own quality control. They can vary their work pace and schedule work breaks, as long as they meet the production standards established by management. The group also performs some of the support, maintenance, and housekeeping activities formerly carried out by staff and service personnel. Group members can deal directly with other departments in solving joint problems and obtaining necessary supplies, a responsibility formerly carried out by a production supervisor.

JOB ATTRIBUTES AND INTRINSIC MOTIVATION Job enrichment programs typically include changes in several aspects of the job, and it has not been clear which changes are most essential. In order to gain a better understanding of the conditions necessary to ensure intrinsic motivation, Hackman and Lawler (1971) conducted a study with 200 employees of a telephone company. A follow-up study was conducted by Hackman and Oldham (1975) with samples of employees from seven organizations. These studies found that several "core dimensions" of the job were related to the intrinsic motivation and job satisfaction of employees. Jobs that were high on the core dimensions were more intrinsically motivating than jobs that were low on them. The core dimensions found by Hackman and Oldham were labeled and defined as follows (pp. 161–162):

> *Skill variety* The degree to which a job requires a variety of different activities in carrying out the work, which involve the use of a number of different skills and talents of the employee.
>
> *Task identity* The degree to which the job requires completion of a "whole" and identifiable piece of work—that is, doing a job from beginning to end with a visible outcome.
>
> *Task significance* The degree to which the job has a substantial impact on the lives or work of other people—whether in the immediate organization or in the external environment.
>
> *Autonomy* The degree to which the job provides substantial freedom, independence, and discretion to the employee in scheduling the work and in determining the procedures to be used in carrying it out.
>
> *Feedback from the job itself* The degree to which carrying out the work activities required by the job results in the employee obtaining direct and clear information about the effectiveness of his or her performance.

The questionnaire developed to measure these dimensions is called the Job Diagnostic Survey (Hackman & Oldham, 1975). This questionnaire also contains scales to measure employee growth needs and intrinsic motivation. The questionnaire is useful for diagnosing jobs and planning how to enrich them. It can also be used to help evaluate the consequences of a job enrichment program (Hackman & Oldham, 1980).

EMPLOYEE DIFFERENCES Hackman and Oldham (1975) and other writers have postulated that individuals with strong growth needs (e.g., need for achievement and independence) would be more satisfied and intrinsically motivated by enriched jobs. It was also expected that a job enrichment program would be more successful for employees with high self-esteem and strong work-ethic values, that is, employees who would not be afraid of the new responsibilities and who believe that it is important to attain personal success in one's occupation. These propositions have been supported in some studies but not in others. In a recent literature review, Griffin et al. (1981) concluded that there is insufficient evidence to accept the individual-difference propositions.

JOB ENRICHMENT CONCLUSIONS Job enrichment is a promising approach for increasing motivation and improving employee performance, but there are some limiting conditions. It is not effective with all kinds of employees, and it is not appropriate for all kinds of jobs. The cost of redesigning or replacing equipment makes extensive job redesign uneconomical in certain situations. The feasibility of job enrichment is also doubtful where the loss in efficiency would greatly exceed any benefits from increased motivation and satisfaction. Finally, some jobs appear to defy attempts at enrichment (e.g., toll collector, garbage truck loader), although it is likely that many of these jobs can eventually be automated.

NEW DIRECTIONS FOR THEORY AND RESEARCH

In a recent article, Mitchell (1982) reviewed the current state of motivation theory and wisely pointed out three things that are needed in this area. First, more integration of theories is needed. Except for a few papers (e.g., Locke, 1979; Wofford, 1979) very little theoretical work has been done to suggest the additive or interactive effects of various motivation theories. The few empirical studies that have courageously tried to combine certain theories suggest that this approach can increase employee motivation. For instance, White, Mitchell, and Bell (1977) showed that evaluation apprehension, goal setting, and social pressure each influences motivation and that these effects might be additive.

Second, Mitchell has suggested that contingency-type models of motivation need to be developed and tested. The question is no longer whether goal setting or reinforcement theory approaches work, but rather under what circumstances (i.e., type of organization, job, and employee). Only in this way will we be able, in the future, to recommend particular motivational approaches for particular situations.

Finally, because jobs are interdependent, social, and subject to change, more theory and research is needed to find out how group processes affect employee motivation. Organization development interventions, such as team building (see Chapter 12), need to be studied as motivational models. We need to gain a better understanding of how these kinds of interventions affect motivation, behavior, and performance.

SUMMARY

Motivation is the process by which behavior is energized and directed. Security, affiliation, esteem, independence, achievement, power, and physiological needs are all potentially relevant influences on behavior in an organizational setting. Need hierarchy theory attempts to explain how certain needs dominate a person's behavior at some point in time. Process theories of motivation explain how a person's behavior is jointly determined by his/her needs and the job situation.

Drive-reinforcement theory explains behavior in terms of the mechanical triggering of learned habits by internal drives and external stimuli. Habits will be stronger when behavior is reinforced immediately and frequently. The extent to which behavior is modified by an incentive will depend on the type of incentive that is used, the magnitude of the incentive, and the schedule of reinforcement.

Expectancy theory explains behavior in terms of conscious choices among alternative actions or levels of effort. According to this theory, a person will choose the behavior alternative that appears most attractive. The attractiveness of an alternative depends on the expectancy that it will lead to various outcomes and on the valence of these outcomes.

Goal theory explains behavior in terms of the influence of conscious goals and intentions. According to this theory, task characteristics, incentives, supervision, and feedback will only affect a person's behavior if they cause the individual to change goals or set new ones. The effect of a goal on behavior depends on its specificity, difficulty, and acceptance by employees.

Pay incentive programs are one approach for motivating employees to work, but they are only feasible in certain situations. There must be an accurate performance measure that reflects all important aspects of the job, and employees must perceive the plan to be personally beneficial. Although the magnitude of the incentive should be large enough to motivate employees, it must not be so large that it is uneconomical to the organization.

Job enrichment is an approach for increasing the intrinsic motivation of employees. Most job enrichment programs have resulted in better performance quality and lower absenteeism and turnover. The consequences of job enrichment for productivity and labor costs depend on a variety of complex factors. Although job enrichment has been successful in many cases, it is not feasible for all kinds of employees or for every kind of situation.

REVIEW AND DISCUSSION QUESTIONS

1. Define or explain each of the following key terms: *motivation, existence needs, security needs, affiliation needs, esteem needs, independence needs, achievement and power needs, need hierarchy, process theories of motivation, law of effect, reinforcement, behavior modification, shaping, continuous reinforcement schedule, partial reinforcement schedule, expectancy, valence, first-level outcome, second-level outcome, goal, incentive, bonus, job enrichment, intrinsic motivation, scientific management, core dimensions.*

2. Explain Maslow's theory, and evaluate its relevance for motivating employees.
3. What are the practical implications of drive-reinforcement theory for motivating employees?
4. Explain expectancy theory. What are its practical implications for motivating employees?
5. How is goal setting related to performance?
6. What are the major types of pay incentive plans?
7. What are the limiting conditions for the effectiveness and feasibility of incentive plans?
8. What kinds of job changes are usually made in a job enrichment program?
9. Under what conditions is job enrichment most likely to increase employee **performance**?

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3

Employee attitudes and job satisfaction

Job satisfaction is the way an employee feels about his or her job. It is a generalized attitude toward the job based on evaluation of different aspects of the job. Although there are hundreds of job characteristics to be considered by an employee, certain clusters of job characteristics tend to be evaluated together in the same way. The clusters most often found in statistical analyses of attitude questionnaires include: pay, working conditions, supervision, co-workers, job content, job security, and promotion opportunity. In effect, an employee can be assumed to have a component attitude toward each of these aspects of the job as well as a composite attitude about the job as a whole.

A person's attitude toward his or her job reflects pleasant and unpleasant experiences in the job and expectations about future experiences. However, despite several thousand studies on job attitudes during the past three decades, it is not possible to specify precisely how job satisfaction is determined. Most of the research has attempted to discover what things are related to job satisfaction, but the causal basis for the relationship has usually been ignored (Lawler, 1973). For example, many studies were conducted to determine how satisfied employees are and to compare the job satisfaction of men versus women, old versus young employees, skilled versus unskilled workers, and so on. Other studies were conducted to determine what aspect of the job is perceived to be most important to employees (e.g., pay, supervision, etc.). The reasons some employees are more satisfied than others or the reasons employees consider some job features to be more important than others were seldom considered. A comprehensive theory of job attitudes has not yet been developed to integrate the diverse findings of the satisfaction research (Lawler, 1973). However, a few satisfaction theories of more limited scope have been proposed, including: (1) discrepancy theory, (2) equity theory, (3) social-influence theory, and (4) two-factor theory.

DISCREPANCY THEORY

According to Locke (1969), satisfaction or dissatisfaction with some aspect of the job depends on the discrepancy between what a person perceives he/she is getting and what is desired. The "desired" amount of a job characteristic is defined as the minimum amount necessary to fulfill the person's current needs. A person will be satisfied if there is no discrepancy between desired and actual considerations. A person will be dissatisfied if there is *less* than the desired amount of a job characteristic. The greater the deficiency and the more important the thing desired, the greater will be the dissatisfaction. If there is *more* than the minimally acceptable amount of some job factor and the excess is beneficial (e.g., extra pay), a person will be even more satisfied than when there is no discrepancy between the desired and actual amount. However, if the excess is perceived to be detrimental (e.g., extra workload, longer hours), the person will be just as dissatisfied as when there is less than the desired amount.

Other variations of the discrepancy model of job satisfaction have been proposed. For example, Porter (1961) defined satisfaction as the difference between how much of something there "should be" and how much there "is now." This conception is basically similar to Locke's model, but Porter's "should be" implies more emphasis on equity considerations and less on needs as the determinant of the preferred amount of a job factor. A study by Wanous and Lawler (1972) found that employees respond differently depending on how the discrepancy is defined. They conclude that people have more than one kind of feeling about their job, and no "one best way" exists to measure job satisfaction. The appropriate way of defining and measuring satisfaction will depend on the purpose of the measurement. It is important to remember that, regardless of how this discrepancy is measured, this theory involves what we call an *intra*personal comparison process. This is quite different from the next theory, which involves an *inter*personal comparison process.

EQUITY THEORY

Equity theory specifies the conditions under which an employee will perceive the benefits and inducements in the job to be fair and reasonable. The theory was developed by Adams (1963), and it is a variation of earlier theories of social comparison processes. The principal components in equity theory are "inputs," "outcomes," "comparison person," and "equity-inequity." An *input* is anything of value that employees perceive that they contribute to the job, such as education, experience, skills, amount of effort expended, number of hours worked, and personal tools, supplies, or equipment used on the job. An *outcome* is anything of value that the employees perceive they obtain from the job, such as pay, fringe benefits, status symbols, recognition, and opportunity for achievement or self-expression.

According to the theory, an employee judges the fairness of outcomes by comparing his/her outcome/input ratio to the outcome/input ratio of one or more *comparison persons*. The comparison person may be someone in the same organization, someone in a different organization, or even the employee in a previous job. The theory does not specify how an employee selects a comparison person or how many comparison persons will be used. If an employee's ratio of outcomes to inputs is equal to the ratio for the comparison person(s), a state of *equity* is perceived to exist by the employee. If the employee perceives the ratios to be unequal, a state of *inequity* will usually be perceived to exist.

Types and magnitude of inequity

Inequity can occur in many ways. For example, an employee will perceive his/her salary to be inequitable if other employees with similar qualifications are receiving a higher salary or if employees who are less qualified are receiving the same salary. These are both examples of undercompensation inequity. According to the theory, an employee will also experience inequity if overcompensated relative to the comparison person. Table 3–1 lists the conditions in which there will be equity, overcompensation inequity, and undercompensation inequity, assuming that the total inputs and total outcomes are dichotomized as either "high" or "low" on some value scale. The amount of inequity will depend on the magnitude of the difference between outcome/input ratios. The larger the difference between an employee's outcome/input ratio and that of the comparison person(s), the greater the perceived inequity. For example, in Table 3–1, there will be greater perceived inequity for situation 11 than for situation 10.

Reactions to inequity

Inequity is one source of job dissatisfaction, and it is accompanied by a state of dissonance that acts as a motive for the person to restore equity. The emotional reaction to overcompensation is likely to be a feeling of guilt, whereas with undercompensation the feeling is likely

TABLE 3-1
Equity and inequity in social comparisons

	Own self		*Comparison person*
I.	*Equity Conditions:*		
	1. High outcomes/High inputs	=	High outcomes/High inputs
	2. Low outcomes/Low inputs	=	Low outcomes/Low inputs
	3. High outcomes/Low inputs	=	High outcomes/Low inputs
	4. Low outcomes/High inputs	=	Low outcomes/High inputs
	5. Low outcomes/Low inputs	=	High outcomes/High inputs
	6. High outcomes/High inputs	=	Low outcomes/Low inputs
II.	*Undercompensation Inequity:*		
	7. Low outcomes/Low inputs	≠	High outcomes/Low inputs
	8. High outcomes/High inputs	≠	High outcomes/Low inputs
	9. Low outcomes/High inputs	≠	Low outcomes/Low inputs
	10. Low outcomes/High inputs	≠	High outcomes/High inputs
	11. Low outcomes/High inputs	≠	High outcomes/Low inputs
III.	*Overcompensation Inequity:*		
	12. High outcomes/High inputs	≠	Low outcomes/High inputs
	13. High outcomes/Low inputs	≠	Low outcomes/Low inputs
	14. High incomes/Low inputs	≠	High outcomes/High inputs
	15. High outcomes/Low inputs	≠	Low outcomes/High inputs
	16. Low outcomes/Low inputs	≠	Low outcomes/High inputs

to be anger and resentment at the organization or the boss. There are a variety of ways that an employee can attempt to restore equity:

1. Increase or decrease one's own inputs, especially effort.
2. Persuade the comparison person to increase or decrease his/her inputs.
3. Persuade the organization to alter the employee's outcomes or those of the comparison person.
4. Psychologically distort one's own inputs or outcomes.
5. Psychologically distort the inputs or outcomes of the comparison person.
6. Select a different comparison person.
7. Leave the organization.

How an employee attempts to reduce inequity will depend on the nature of the outcome and input discrepancies and on the relative cost and feasibility of alternative reactions in the given situation. One weakness of the theory is that it does not specify in any detail how a person will choose among the available reactions to inequity.

Implications for employee performance

Equity theory has implications for employee performance as well as for job satisfaction. The theory predicts that an employee will alter his or her effort input when this is more feasible than other reactions to inequity. An employee who is undercompensated and is paid a salary or hourly rate will restore equity by reducing effort input, thereby decreasing the quality or quantity of performance. If an employee is undercompensated and a substantial portion of his/her pay is contingent on performance quantity (e.g., piece rate), the employee will try to increase incentive earnings without increasing effort. Unless quality control is tight, an employee can usually increase the quantity of output without extra effort by letting quality deteriorate.

For an employee who is overcompensated and is paid on an hourly or salary basis, equity can be restored by an increase in effort input. This should result in an increase in the quantity or quality of performance. If an employee is overcompensated and a substantial portion of pay is contingent on performance quantity, the employee will try to increase effort input without a corresponding increase in incentive earnings. According to the theory, the employee will increase performance quality while reducing or holding constant performance quantity. These predictions about employee performance when there is undercompensation and overcompensation inequity are summarized in Table 3–2.

TABLE 3–2
Performance implications on inequity

	Undercompensation	*Overcompensation*
Hourly rate or salary	Lower quality and/or quantity of output	Higher quality and/or quantity of output
Piece rate or commission	Lower quality and greater quantity	Higher quality, lower or same quantity

Empirical support

The prediction that employees will restrict or reduce their incentive earnings if they perceive themselves to be overcompensated is highly controversial. This prediction is contrary to expectancy theory and drive-reinforcement theory, which imply that larger incentives will result in an increase in the quantity of employee performance. Most of the research on equity theory has tested the performance implications of the theory, including the prediction just mentioned. Other important questions have been mostly neglected, including the basis for selecting a comparison person, the basis for choosing between different reactions to inequity, and the basis for determining what personal attributes and job characteristics will be regarded as inputs and outcomes in the social comparison process.

Reviews of the equity theory research (see Campbell & Prichard, 1976; Goodman, 1977) find that the empirical evidence is mixed. The occurrence of social comparison processes among employees and the phenomenon of perceived inequity are well validated. However, the implications of inequity for performance have not been conclusively demonstrated. Most of the studies have had methodological problems of one sort or another and have been too short in duration to evaluate anything but the immediate short-term effects of inequity on performance. Thus for the present, equity theory appears to be less useful for predicting effort and performance than for predicting whether an employee will be dissatisfied with certain aspects of the job for which social comparisons are likely to occur, such as pay, advancement, recognition, and status symbols.

SOCIAL INFLUENCE THEORY

Salancik and Pfeffer (1977, 1978) and others have questioned the validity of such complicated social comparison notions as equity theory in explaining job satisfaction. These authors also take issue with the basic need satisfaction model that forms the foundation of job enrichment approaches. Instead, they suggest that perhaps people decide how satisfied they are with their jobs by simply making observations about other employees' satisfaction levels. This implies that an employee infers a level of his or her own satisfaction by merely seeing how co-workers behave and by listening to what they are saying about their jobs. That is, satisfaction may be more of a result of how one's co-workers react to the job rather than of the job itself.

To date, only a few empirical studies have tested this assumption. In one study the researchers manipulated both the characteristics of the job (high job enrichment versus low job enrichment) and informational cues (positive versus negative) in a simulated personnel selection task. They found that the informational cues (i.e., what other workers wrote about the task) had a greater impact on their job satisfaction than did the objective characteristics of the task itself (O'Reilly & Caldwell, 1979). In another study, 41 part-time student employees worked in a simulated organizational setting involving a routine clerical task. As in the first study, the job satisfaction scores were significantly higher for those people receiving position social cues from co-workers than for those receiving negative cues. These results held regardless of whether employees were assigned to the enriched or nonenriched conditions (White & Mitchell, 1979). Finally, Weiss and Shaw (1979) conducted a study that also illustrates how individuals model others' job satisfaction. They first develop a training film showing people working on an assembly task. Two types of tasks were filmed: one boring and one interesting. Throughout the film, the actors made incidental comments that indicated that they either liked the task (e.g., "This task is OK" and "I don't mind doing this at all") or that they held a neutral position toward the task. Following the film, the participants in the study worked on the same task they saw demonstrated in the film (either the boring or interesting one) and then later rated their satisfaction with the task. The results clearly showed that their satisfaction with the task was influenced by the reactions of the people performing the same task in the film as well as by the properties of the task itself.

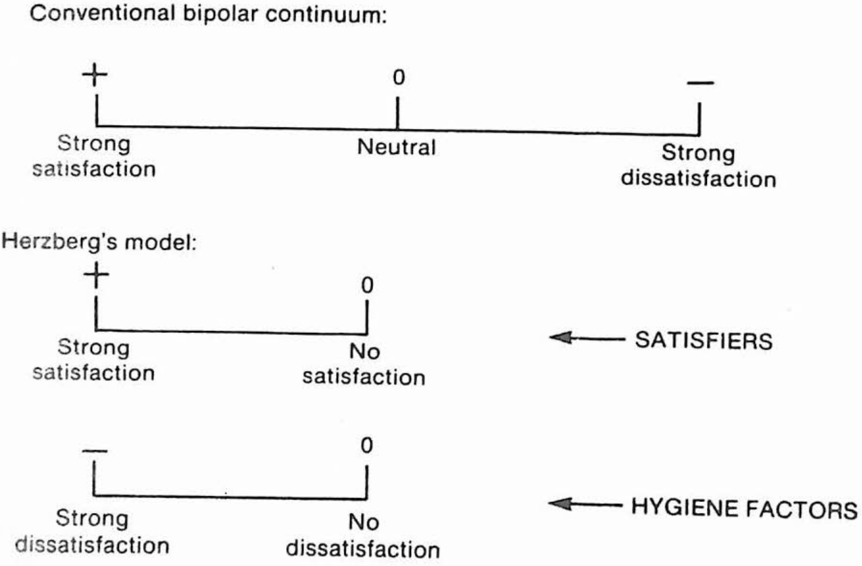
This theory of job satisfaction is interesting because it recognizes the social factors that influence employees' affective reactions at work. Apparently, one's co-workers have a greater influence on our satisfaction levels than we realize.

TWO-FACTOR THEORY

The two-factor theory of job attitudes states that job satisfaction is qualitatively different from job dissatisfaction (Herzberg, 1966; Herzberg, Mausner & Snyderman, 1959). According to the theory, job characteristics can be grouped into two categories, one called dissatisfiers or hygiene factors and the other called satisfiers or motivators. The hygiene factors include such things as pay, supervision, interpersonal relations, working conditions, job security, and status. A certain amount of the hygiene factors is necessary to fulfill a person's biological drives and basic needs, such as safety and affiliation. When these needs are not fulfilled, the person will be dissatisfied. Once there is a sufficient amount of the hygiene factors to fulfill these needs, a person will no longer be dissatisfied, but neither will he/she be satisfied. A person will only be satisfied if there is an adequate amount of the job factors called satisfiers. Satisfiers are job characteristics that are relevant to a person's higher-order needs and psychological growth, including work that is interesting and challenging, responsibility, and opportunity for achievement, recognition, and advancement. An insufficient amount of the satisfiers will prevent an employee from experiencing the positive satisfaction that accompanies psychological growth, but will not result in job dissatisfaction.

Two-factor theory is quite different from conventional theories of job attitudes that portray satisfaction and dissatisfaction as opposite poles of a single bipolar continuum with a neutral point (neither satisfied nor dissatisfied) in the center. In two-factor theory, there are two distinct continua, one for satisfaction and the other for dissatisfaction. The two incompatible conceptions of job attitudes are illustrated graphically in Figure 3–1. When two-factor theory was proposed, it generated a great deal of controversy and was vigorously attacked by proponents of the conventional attitude theory. The controversy was

FIGURE 3-1
Two views of job attitudes



fueled by Herzberg's (1968) claim that the only way to motivate employees was to increase the satisfiers, an approach referred to as "job enrichment." In other words, according to Herzberg, both satisfaction and motivation are dependent on the job factors called satisfiers. Pay incentives, better supervision, and other programs were viewed as ineffective approaches for improving satisfaction and motivation.

Many studies were conducted to test two-factor theory. The results have been mixed. Studies that have employed the methods used in the original research by Herzberg, Mausner, and Snyderman (1959) generally provide support for the theory, but studies using other research methods have usually failed to support the theory. In reviewing this research, King (1970) concluded that there have actually been several different versions of two-factor theory tested in previous studies, and none of the versions has been adequately validated. It is now generally accepted that, contrary to the extreme version of the theory, some job factors can cause either satisfaction or dissatisfaction. Although the simplicity of the theory is appealing, it has not received much empirical support (see Locke, 1976; Miner & Dachler, 1973).

MEASUREMENT OF JOB ATTITUDES

Job attitudes can be measured in a variety of ways. Information about employee attitudes can be obtained by individual interviews, by a questionnaire survey, or during regular or special group meetings.

The type of questions used to discover employee attitudes also varies. With an "open-ended question," employees are asked to describe in their own words their feelings about various aspects of the job. With a "fixed-response question" the employees are asked to select one of several predetermined answers to a specific question. There are several different kinds of fixed-response questions, and most of them have been developed for use in a questionnaire rather than in an interview. Nevertheless, it is possible to use fixed-response questions in an interview, and this is occasionally done in opinion surveys.

One kind of fixed-response question is based on the assumption that satisfaction and dissatisfaction are part of the same bipolar attitude continuum. This type of item is used in the *Minnesota Satisfaction Questionnaire* (Weiss, Dawis, England, & Lofquist, 1967). The short form of the MSQ is shown in Figure 3–2. General job satisfaction can be measured by summing the scores for all 20 items. Certain subsets of item scores can be summed to obtain a measure of extrinsic satisfaction and a measure of intrinsic satisfaction. The long form of the MSQ has 100 items and has been administered to a large variety of occupational groups. The scores obtained by each occupational group provide a set of norms against which the scores obtained by a similar group of employees can be compared.

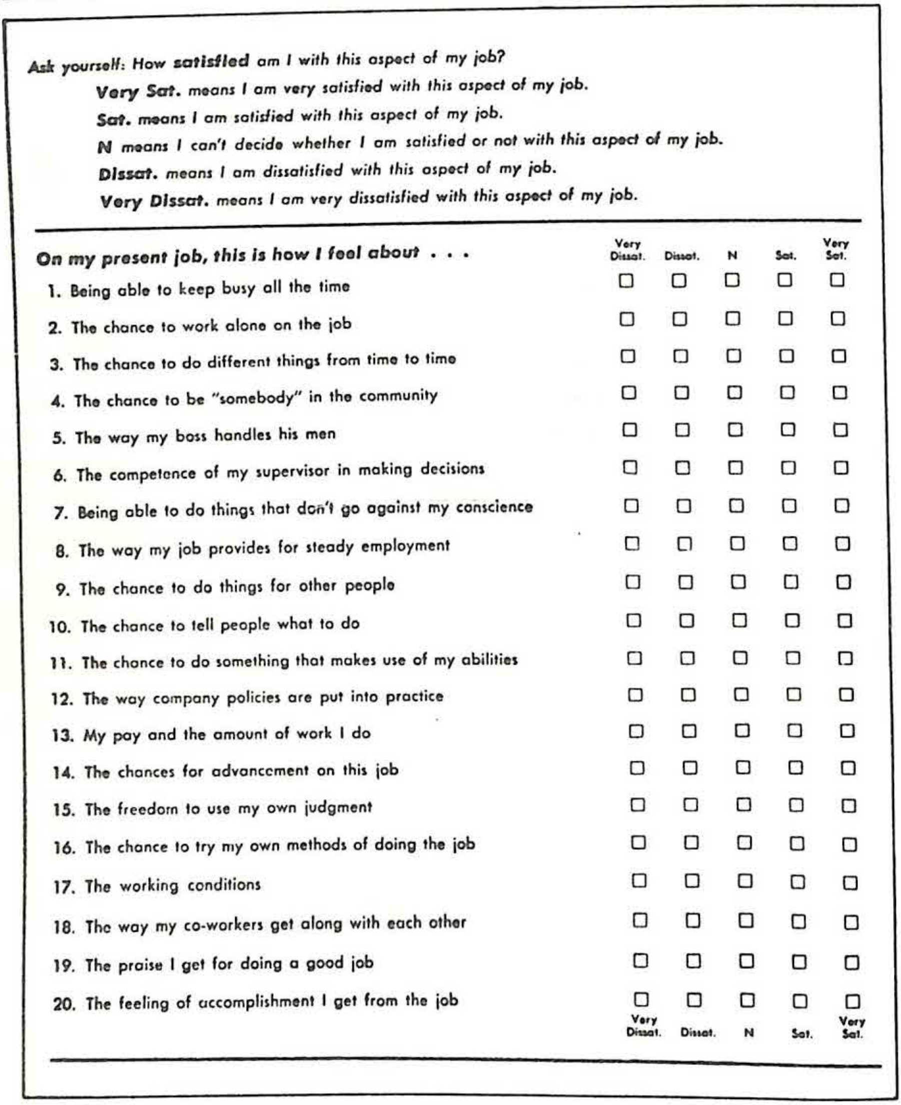
Another job satisfaction scale using fixed-response items is the *Job Descriptive Index* (Smith, Kendall, & Hulin, 1969). The JDI has separate scales for satisfaction with pay, promotion, supervision, work, and people. Some examples of the items in these scales are shown in Figure 3–3.

Scale scores are obtained by summing the scores for the items in a given scale, and the overall satisfaction of an employee can also be computed. Like the MSQ, the JDI has been used with a large variety of employee samples, and norms are provided for employees according to their age, sex, education, income, and type of community.

A third type of fixed-response scale for job attitudes is based on the discrepancy theory of satisfaction. Each item has two questions, one for "should be" and one for "is now." Some items from Porter's (1961) Need Satisfaction Questionnaire are shown in Figure 3–4. An item in this scale is scored by subtracting the numerical value of the respondent's choice on the "is now" part from the numerical value of his/her choice on the "should be" part. The greater this difference, the more dissatisfied the respondent is with this aspect of the job. Overall job dissatisfaction can be measured by summing the scores on all of the items. Although not shown in Figure 3–4, the NSQ also contains questions regarding the importance of each aspect of the job to the respondent. These questions provide an opportunity to measure the strength of a need as opposed to need satisfaction.

As with fixed-response questions, a respondent's answers to open-

FIGURE 3-2
Short form of the Minnesota Satisfaction Questionnaire



Ask yourself: How **satisfied** *am I with this aspect of my job?*

Very Sat. *means I am very satisfied with this aspect of my job.*

Sat. *means I am satisfied with this aspect of my job.*

N *means I can't decide whether I am satisfied or not with this aspect of my job.*

Dissat. *means I am dissatisfied with this aspect of my job.*

Very Dissat. *means I am very dissatisfied with this aspect of my job.*

On my present job, this is how I feel about . . .	Very Dissat.	Dissat.	N	Sat.	Very Sat.
1. Being able to keep busy all the time	☐	☐	☐	☐	☐
2. The chance to work alone on the job	☐	☐	☐	☐	☐
3. The chance to do different things from time to time	☐	☐	☐	☐	☐
4. The chance to be "somebody" in the community	☐	☐	☐	☐	☐
5. The way my boss handles his men	☐	☐	☐	☐	☐
6. The competence of my supervisor in making decisions	☐	☐	☐	☐	☐
7. Being able to do things that don't go against my conscience	☐	☐	☐	☐	☐
8. The way my job provides for steady employment	☐	☐	☐	☐	☐
9. The chance to do things for other people	☐	☐	☐	☐	☐
10. The chance to tell people what to do	☐	☐	☐	☐	☐
11. The chance to do something that makes use of my abilities	☐	☐	☐	☐	☐
12. The way company policies are put into practice	☐	☐	☐	☐	☐
13. My pay and the amount of work I do	☐	☐	☐	☐	☐
14. The chances for advancement on this job	☐	☐	☐	☐	☐
15. The freedom to use my own judgment	☐	☐	☐	☐	☐
16. The chance to try my own methods of doing the job	☐	☐	☐	☐	☐
17. The working conditions	☐	☐	☐	☐	☐
18. The way my co-workers get along with each other	☐	☐	☐	☐	☐
19. The praise I get for doing a good job	☐	☐	☐	☐	☐
20. The feeling of accomplishment I get from the job	☐	☐	☐	☐	☐
	Very Dissat.	Dissat.	N	Sat.	Very Sat.

Source: D. J. Weiss, R. V. Dawis, G. W. England, & L. H. Lofquist, *Minnesota Studies in Vocational Rehabilitation: 22, Manual for the Minnesota Satisfaction Questionnaire.* Vocational Psychology Research, University of Minnesota, 1967 (© 1963).

ended questions can be coded to yield a measure of attitude strength. However, with open-ended questions the process of assigning a numerical score to represent the job satisfaction of a respondent is more difficult, subjective, and time-consuming. On the other hand, open-ended questions provide more insight into the reasons an employee likes or dislikes the job. Moreover, it is easier to detect misinterpretation of the question by the respondent should this occur. Open-ended

FIGURE 3–3
Sample items from the Job Descriptive Index (each scale is presented on a separate page)

Think of your present work. What is it like most of the time? In the blank beside each word given below, write

_Y_ for "Yes" if it describes your work
_N_ for "No" if it does NOT describe it
_?_ if you cannot decide

Work on Present Job

_____ Routine
_____ Satisfying
_____ Good
_____ On your feet

Think of the pay you get now. How well does each of the following words describe your present pay? In the blank beside each word, put

_Y_ if it describes your pay
_N_ if it does NOT describe it
_?_ if you cannot decide

Present Pay

_____ Income adequate for normal expenses
_____ Insecure
_____ Less than I deserve
_____ Highly paid

Think of the opportunities for promotion that you have now. How well does each of the following words describe these? In the blank beside each word put

_Y_ for "Yes" if it describes your opportunities for promotion
_N_ for "No" if it does NOT describe them
_?_ if you cannot decide

Opportunities for Promotion

_____ Promotion on ability
_____ Dead-end job
_____ Unfair promotion policy
_____ Regular promotions

Think of the kind of supervision that you get on your job. How well does each of the following words describe this supervision? In the blank beside each word below, put

_Y_ if it describes the supervision you get on your job
_N_ if it does NOT describe it
_?_ if you cannot decide

Supervision on Present Job

_____ Impolite
_____ Praises good work
_____ Influential
_____ Doesn't supervise enough

Think of the majority of the people that you work with now or the people you meet in connection with your work. How well does each of the following words describe these people? In the blank beside each word below, put

_Y_ if it describes the people you work with
_N_ if it does NOT describe them
_?_ if you cannot decide

People on Your Present Job

_____ Boring
_____ Responsible
_____ Intelligent
_____ Talk too much

Note: The Job Descriptive Index is copyrighted by Bowling Green State University. The complete forms, scoring key, instructions, and norms can be obtained from Dr. Patricia C. Smith, Department of Psychology, Bowling Green State University, Bowling Green, Ohio 43403.

FIGURE 3–4
Examples of items from the Need Satisfaction Questionnaire

INSTRUCTIONS: Circle the number on the scale that represents the amount of the characteristic being rated. Low numbers represent low or minimum amounts, and high numbers represent high or maximum amounts.

1. The opportunity for personal growth and development in my management position.
    a. HOW MUCH IS THERE NOW?
    (Minimum) 1 2 3 4 5 6 7 (Maximum)
    b. HOW MUCH SHOULD THERE BE?
    (Minimum) 1 2 3 4 5 6 7 (Maximum)
2. The feeling of security in my management position.
    a. HOW MUCH IS THERE NOW?
    (Minimum) 1 2 3 4 5 6 7 (Maximum)
    b. HOW MUCH SHOULD THERE BE?
    (Minimum) 1 2 3 4 5 6 7 (Maximum)

Source: L. W. Porter, "A Study of Perceived Need Satisfaction in Bottom and Middle Management Jobs, *Journal of Applied Psychology*, 45 (1961), p. 3.

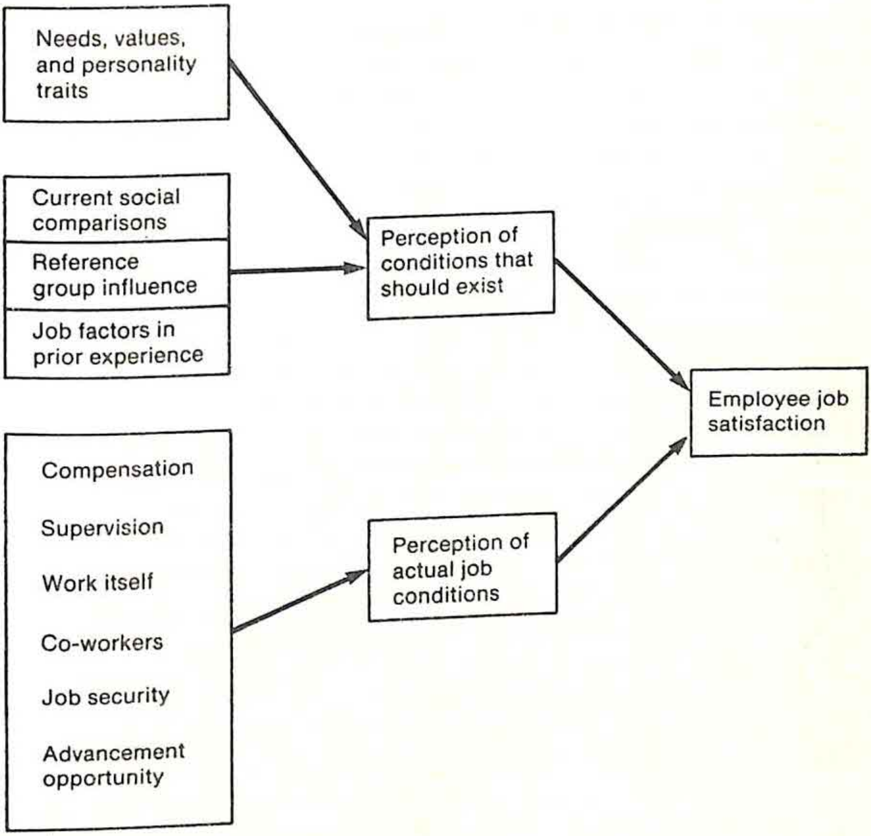
questions can be used either in a questionnaire or in an interview. They are especially effective in an interview where the interviewer can probe the respondent to obtain more information about the respondent's attitudes. In a questionnaire, the advantages of both kinds of questions can be obtained by using a combination of fixed-response and open-ended items.

DETERMINANTS OF JOB ATTITUDES

The research evidence suggests that the best way to explain how job attitudes are determined is by means of an "interaction model." That is, a person's job satisfaction depends jointly on the characteristics of the job situation and the characteristics of the person. Of the four satisfaction theories described earlier, the one most compatible with an interaction model is probably discrepancy theory. A person's perception of what "should be" in a job will be determined by employee characteristics and situational variables, and perception of what "is now" in a job will be determined mostly by actual job conditions. An example of how discrepancy theory can be extended to include these satisfaction determinants is shown in Figure 3–5.

Three kinds of employee characteristics that affect "should be" perceptions are needs, values, and personality traits. Needs are impor-

FIGURE 3–5
A hypothetical model of job satisfaction determinants


Needs, values, and personality traits
Current social comparisons
Reference group influence
Job factors in prior experience
Compensation
Supervision
Work itself
Co-workers
Job security
Advancement opportunity
Perception of conditions that should exist
Perception of actual job conditions
Employee job satisfaction

tant because an employee will desire more of any job factor that is instrumental in fulfilling currently activated needs. Once enough of a job factor (e.g., recognition) is present in the job to fill needs to which it is relevant (e.g., esteem), additional amounts of the job factor will not be desired by the employee and will not increase job satisfaction. Values are the relatively stable beliefs of a person about what is "right" and "wrong" behavior and what are desirable and undesirable life goals. Values influence an employee's preferences for certain kinds of occupations and job content. Finally, personality traits, such as self-esteem, modify a person's job aspirations and preferences. Self-esteem is the extent to which a person likes and values himself/herself and perceives himself/herself to be a competent, adequate human being. An employee with high self-esteem will prefer a job that is important or one that provides the opportunity for advancement and personal success. An employee with low self-esteem will prefer a low-prestige job that is consistent with an unfavorable self-image and is not very demanding (Korman, 1970).

Three aspects of the job situation that affect "should be" perceptions are social comparisons with other employees, previous job characteristics, and reference groups. The social comparison process was described earlier in the section on equity theory. An employee will compare the beneficial outcomes received from the job to the outcomes received by other employees with similar jobs, after taking into account any differences between his/her "inputs" and those of the comparison persons. Employees' perceptions of what "should be" in the job are also influenced by their perceptions of "what was" in the past. Previous conditions are important in that they set a minimum expectation for the present. Nobody wants to receive lower pay or less benefits than were received earlier in the same job or in a previous job.

Reference groups make up a third situational influence on an employee's "should be" perceptions. A reference group is one to which a person looks for guidance in interpreting and evaluating personal experiences. A person's expectations and aspirations for a job will be influenced by the reference group's conception of what kind of job and working conditions are appropriate for that individual (Korman, 1971). An employee will be more satisfied if a job is endorsed by the reference group than if it is not. A good example of a reference group is the influence of a labor union on worker perceptions of a fair and reasonable increase in pay and benefits.

In the remainder of this section, we will examine the determinants of employee satisfaction with job content, compensation, and supervision. A majority of studies on the determinants of job attitudes have focused on either the influence of job characteristics or the influence of employee characteristics, rather than examining the joint influence of both kinds of variables. We will emphasize the few studies that have included employee characteristics as well as job characteristics to explain how job satisfaction is determined.

Satisfaction with the work

Studies on the importance of different job characteristics consistently find that the nature of the work itself is a major determinant of job satisfaction. Several recent studies have attempted to identify the major dimensions of job content and to see how employee satisfaction is influenced by job content (Brief & Aldag, 1975, Hackman & Lawler, 1971). The most elaborate study of this type was conducted by Hackman and Oldham (1975). They administered a questionnaire called the Job Diagnostic Survey to several hundred employees working in 62 different jobs. The following five "core dimensions" were identified (pp. 161–62):

> *Skill variety* The degree to which a job requires a variety of different activities in carrying out the work, which involve the use of a number of different skills and talents of the employee.
>
> *Task identity* The degree to which the job requires completion of a "whole" and identifiable piece of work—that is, doing a job from beginning to end with a visible outcome.
>
> *Task significance* The degree to which the job has a substantial impact on the lives or work of other people—whether in the immediate organization or in the external environment.
>
> *Autonomy* The degree to which the job provides substantial freedom, independence, and discretion to the employee in scheduling the work and in determining the procedures to be used in carrying it out.
>
> *Feedback from the job itself* The degree to which carrying out the work activities required by the job results in the employee obtaining direct and clear information about the effectiveness of his or her performance.

Each of these core dimensions involves some aspects of the job content that can affect an employee's work satisfaction (Hackman & Oldham, 1975). The greater the variety of activities performed by an employee, the less boring the job will be. The most boring jobs are those in which the same simple actions must be repeated every few minutes, hundreds of times each day. The more a job involves the use of skills and talents relevant to the employee's self-identity, the more the employee can feel that he or she is performing meaningful work rather than simply "putting in time."

Task identity and task significance also affect the experienced meaningfulness of the work. An employee who solders three connections on an electrical panel as it passes by on the assembly line is not likely to find the work very meaningful. The employee is not really "making" a television set, or even a significant component of a television set. On the other hand, an employee who assembles the entire finished product, or who makes an important component of the finished product, will experience a sense of completion and will probably perceive the work to be meaningful.

The amount of autonomy an employee has in the job and the degree to which the work provides objective performance feedback will determine how much opportunity there is for satisfaction of higher-order needs, such as achievement and independence. When an employee has no control over work procedures or work pace, as on most mechanically paced assembly lines, there is little opportunity to experience the intrinsic satisfaction of successfully accomplishing a challenging task. On the other hand, in a job in which the employee has substantial autonomy, the task is challenging, and performance feedback is available, there is a good opportunity for fulfillment of achievement needs. A job in which an employee can set the work pace, can vary the pace and rest breaks, and can do the job in the way he or she thinks it should be done (within the limits imposed by work schedules and performance standards) will also allow fulfillment of independence needs.

Satisfaction with compensation

Several studies have found that pay is the job characteristic most likely to be a source of employee dissatisfaction (see Lawler, 1971, p. 218). For example, in a study by Porter (1961), 80 percent of a sample of managers were dissatisfied with their pay. A major cause of pay dissatisfaction is perceived inequity. As noted earlier in the section on equity theory, employees judge their pay by making social comparisons. The "going rate" for employees in the same occupation is one influence on a person's belief about what salary he or she should be paid. The higher the level of education and professionalism, the more likely it is that an employee will make social comparisons with persons outside the immediate organization but in the same profession (Goodman, 1974). If an organization pays less than the going rate in the community for a given type of job, employees will probably be dissatisfied with their pay.

Employees will also compare their salaries with those of co-workers in the same organization. In the case of managers, social comparisons will probably be made with subordinates as well as with peers. Managers will expect their pay to reflect the difference in responsibility, experience, and ability that they perceive to exist between themselves and subordinates. The higher a person is in the authority hierarchy and the more responsibility, education, skill, and seniority a person has, the more pay he or she will expect to receive.

Managers and certain categories of nonsupervisory employees, such as sales personnel, usually prefer their pay to reflect how well they perform on the job (Lawler, 1971). If pay is not based on performance, high-performing employees will be dissatisfied that they are earning the same or less than low performers. Nevertheless, an incentive program to reward superior performance will not necessarily result in higher pay satisfaction. As was noted in Chapter 2, where there is no objective measure of performance, most employees tend to overestimate their performance. In this situation, which is quite common, employees are likely to feel that they are not paid as much as their performance justifies (Meyer, 1975).

In addition to equity considerations, pay satisfaction will be affected by an employee's needs and values. If an employee's pay is sufficient to provide for existence needs, he/she will be more satisfied than if the pay is less than necessary to ensure an adequate standard of living (Goodman, 1974). Of course, as an employee's income gradually increases, his/her standard of living rises, and past "luxuries" become present "necessities." Thus higher wages are likely to result in only a temporary improvement in satisfaction. Even if the standard of living to which an employee aspires does not increase, inflation is likely to erode satisfaction with any given level of pay. The more dependent employees are on their pay to satisfy existence needs, the more their pay satisfaction will be affected by the cost of living. Hulin (1966) found that workers in communities with a high cost of living were not as satisfied as workers who earned the same salary but lived in communities where the cost of living was lower.

Pay is also a means of fulfilling certain security needs. A person who worries about economic disaster will be less satisfied with a given level of pay than a person who does not feel insecure, and much more pay will be needed to satisfy the former. Finally, an employee's attitude toward his/her pay will reflect underlying values regarding money and materialism. Pay will be a more important determinant of job satisfaction for people who value money and material possessions than for people who do not. Additional information about importance of pay satisfaction can be found in Wallace and Fay (1983).

Satisfaction with supervision

The behavior of the immediate supervisor is another important determinant of an employee's job satisfaction. However, the reaction of employees to their supervisor will usually depend on characteristics of the employees as well as on characteristics of the supervisor. As is pointed out in Chapter 7, there is seldom any simple and consistent relationship between leader characteristics and subordinate satisfaction. The only leader behavior that has a predictable effect on subordinate satisfaction with the leader is *consideration*. The results from most studies indicate that employees are more satisfied with leaders who are considerate and supportive than with leaders who are either indifferent or hostile toward subordinates (see review by Yukl, 1971). This finding is not particularly surprising; people who are warm and considerate are usually better liked, whether they are leaders or not. Even so, it should be noted that individuals differ somewhat in their preference for leader consideration (Hunt & Liebscher, 1973; Kavanagh, 1975). Having a leader who is considerate and supportive is likely to be more important for employees with low self-esteem or very unpleasant and frustrating jobs (House, 1971; House & Mitchell, 1974).

The effects of a supervisor's task-oriented behavior on subordinate satisfaction is less predictable. In some studies, employees have been more satisfied with leaders who engage in a great deal of task-oriented behavior, and other studies indicate greater satisfaction with leaders who are not very task-oriented (see reviews by Kerr et al., 1974; Yukl, 1971). These inconsistent results probably reflect differences among studies with regard to employee preferences for task-oriented leadership. In a job situation in which subordinate work roles are quite ambiguous, the subordinates will prefer a leader who clarifies their role requirements. That is, if subordinates are not capable of figuring out how to perform the work by themselves, they will prefer a leader who provides adequate guidance and instruction. On the other hand, where work roles are clearly defined and the subordinates are highly competent to perform without frequent guidance and instruction, a leader who does not supervise closely will be preferred (House, 1971; House & Mitchell, 1974). Finally, if subordinates are not very motivated and they find the work to be unpleasant, they will prefer a leader who does not pressure them to maintain a high level of performance.

The amount of participation allowed employees also affects their satisfaction with the supervisor, although once again the relationship is complex. Subordinate preferences for participation in decision making will vary, depending on the type of decision, the personality and needs of the subordinates, and the extent to which they trust their leader (Heller, 1971; Kavanagh, 1975; Yukl, 1971). In a study by Morse (1953), workers were most satisfied when the amount of participation was equal to the desired amount, regardless of how much was desired. However, researchers have only begun to identify what specific individual traits and situational variables shape an employee's preferences for participative supervision.

CONSEQUENCES OF JOB SATISFACTION AND DISSATISFACTION

Some behavioral scientists have studied job satisfaction because they believe that the quality of work experience has important implications for a person's mental health and psychological adjustment (e.g., Kornhauser, 1965). A second reason for studying job satisfaction is that it may have direct or indirect consequences for organizational effectiveness. Most of the research on job attitudes has reflected a greater concern for organizational effectiveness than for employee welfare. Numerous studies have been conducted to determine whether job attitudes affect productivity, absenteeism, turnover, and other aspects of employee behavior relevant to organizational effectiveness.

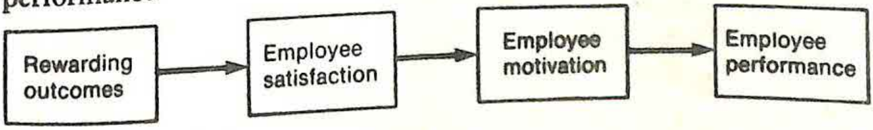
Satisfaction and performance

In the early research on job attitudes, it was commonly assumed that employees who were satisfied would be more motivated and thus more productive than dissatisfied employees. If true, this assumption would imply that an organization could improve productivity by providing employees with pleasant working conditions, a fair salary, considerate supervisors, and sufficient amounts of other kinds of rewarding outcomes. The early conception of the causal relationship between satisfaction and performance is illustrated in Figure 3–6.

Reviews of the research literature by Brayfield and Crockett (1955) and by Vroom (1964) found that satisfaction and performance were not closely related to each other in any simple fashion. In a majority of studies, there was a positive correlation, but the size of the correlation was usually quite small. Thus the assumption that job satisfaction leads to superior performance was discredited. Building on the analyses and recommendations made by Brayfield and Crockett, more complex and sophisticated models have been developed to explain how satisfaction and performance are related.

The best example of the newer models is the one proposed by Lawler and Porter (1967). According to their model, performance causes satisfaction rather than the other way around. However, the causal connection only occurs when employees perceive that intrinsic and extrinsic rewards are associated with superior performance. Intrinsic rewards result from superior performance in those situations where an employee can assume credit for successfully accomplishing a challenging task that requires the use of important skills. Extrinsic rewards are administered by the organization and include such things as pay, promotion, status symbols, and formal recognition. When the organization makes extrinsic rewards contingent on performance, employees with superior performance will receive more rewards than employees with average or inferior performance. As long as these extrinsic rewards are perceived to be equitable, the superior performers will also tend to be more satisfied. In other words, when performance leads to intrinsic and extrinsic rewards, and these lead in turn to higher job satisfaction, performance and satisfaction will be positively correlated with each other. However, when performance does not lead to intrinsic and extrinsic rewards, performance and satisfaction will not be correlated positively with each other. Extrinsic rewards are usually less closely related to performance than are intrinsic rewards because extrinsic rewards are administered by the organization and intrinsic rewards are "self-administered."

FIGURE 3–6
Early conception of the relationship between satisfaction and performance



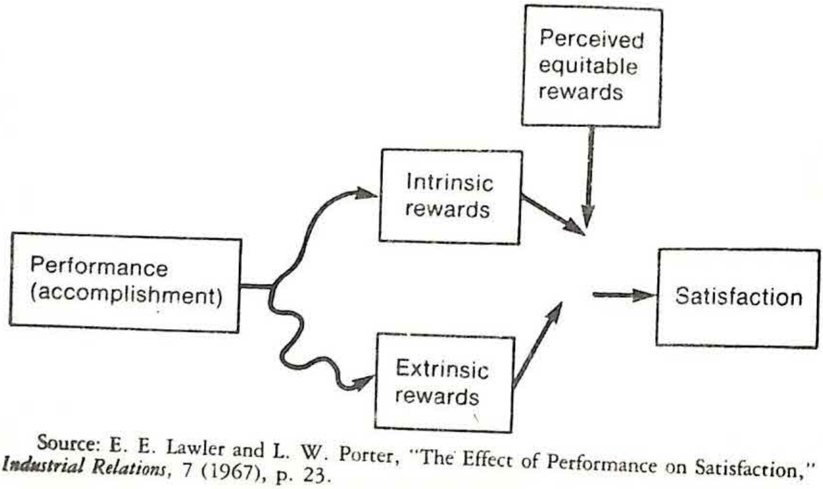
The causal relationships in the Lawler and Porter model are illustrated in Figure 3-7. The results of research conducted to test the Lawler-Porter model have not been consistent. Several studies have supported the model (Cherrington et al., 1971; Greene, 1973; Koppelman, 1975; Lawler & Porter, 1967; Siegel & Bowen, 1971), but other studies have failed to find supporting evidence or have yielded mixed results (Kesselman et al., 1974; Pritchard, 1973; Sheridan & Slocum, 1975; Wanous, 1974; Wood, 1974). The findings in some of these studies suggest that the model may need to be further refined and elaborated.

Dissatisfaction and withdrawal

A number of literature reviews have found a fairly consistent relationship between dissatisfaction and withdrawal in the form of absenteeism and turnover (Brayfield & Crockett, 1955; Mobley, 1977; Muchinsky, 1977; Steers & Rhodes, 1978). Employees who are dissatisfied with their jobs are more likely than satisfied employees to stay away from work or resign, although the relationship is not a strong one. Other forms of withdrawal behavior, such as drinking and taking illegal drugs, have received less attention in the research literature, but it is likely that they are also associated to some extent with job dissatisfaction.

Withdrawal behavior by employees usually has adverse consequences for the organization. Absenteeism disrupts normal operations, causes delays, increases expenses for "sick pay," and necessitates the employ-

FIGURE 3-7
Lawler-Porter model of the relation between satisfaction and performance



Source: E. E. Lawler and L. W. Porter, "The Effect of Performance on Satisfaction," *Industrial Relations*, 7 (1967), p. 23.

ment of extra personnel to substitute for employees who don't show up for work. Turnover also disrupts normal operations, and the expense of selecting and training replacements is often very substantial.

Dissatisfaction and aggression

The frustration that accompanies job dissatisfaction can lead to aggressive behavior rather than withdrawal. Aggression may take the form of sabotage, deliberate errors, and militant union activities, such as wildcat strikes, slowdowns, and excessive grievances. Aggression may also be displaced to other parties, such as co-workers or an employee's family. Thus there may be a lot of bickering and fighting among employees when they are very frustrated. When aggressive acts interfere with operations, reduce the quality of production, and inhibit cooperation and teamwork, they can prove costly to the organization. Dissatisfaction with inadequate compensation or boring work can also contribute to the incidence of employee theft. Stealing of money, merchandise, and supplies by employees has been a serious problem in some organizations.

Job satisfaction and life satisfaction

What is the relationship between job satisfaction and life satisfaction? On theoretical grounds, three possibilities exist (Kabanoff, 1980). The first is that of *compensation;* higher satisfaction in one domain (work) may compensate for low satisfaction in the other. The second possibility is *spillover*. That is, high (or low) satisfaction in one domain will spill over to the other domain. The third possibility is *segmentation*. This suggests that the two domains are psychologically separate from one another.

At this time researchers have no definitive empirical support for any of these three explanations. Instead, each of the three theories has received some confirmation (Dubin & Champoux, 1977; London, Crandall, & Seals, 1977; Orpen, 1978; Weaver, 1978).

The major problem researchers seem to be experiencing is in measuring nonwork satisfaction. It is hoped that when this methodological problem is solved we will be able to know which of the possibilities best describes this important relationship.

Satisfaction and organizational effectiveness

Job attitudes affect organizational effectiveness to the extent that they influence turnover, absenteeism, strikes, grievances, sabotage, theft, and so on. Further, studies have shown that satisfied employees

Exaggerated promises are made, and disadvantages are ignored, leading to eventual employee disappointment and dissatisfaction when the truth is discovered.

SUMMARY

Job satisfaction is the way an employee feels about his/her job. Employee satisfaction is affected by several aspects of the job, including pay, working conditions, supervision, co-workers, job content, job security, and opportunity for advancement. Job attitudes are determined jointly by job characteristics and employee characteristics. What an employee wants in a job will depend on the individual's needs, values, and personality traits. Whether an employee will perceive current job conditions to be satisfactory will also depend on social comparisons, previous job conditions, and reference-group influences.

Major theories of job satisfaction include discrepancy theory, equity theory, social influence theory, and two-factor theory. Each of these theories is narrowly focused, and none of them has been conclusively supported in research studies.

Job attitudes can be measured in a variety of ways. The most commonly used methods are questionnaires and interviews. Respondents can be asked either open-ended or fixed-response questions. Each type of method and question format has certain advantages and disadvantages.

The relationship between satisfaction and performance is complex and indirect. Early conceptions that satisfied employees will be more productive have been replaced by more sophisticated models that postulate that performance leads to satisfaction under certain conditions but not under other conditions. Employee dissatisfaction has been found in most studies to result in aggression or withdrawal behavior.

The first step in dealing with employee dissatisfaction is to discover the reasons for it. Remedial steps include changing job conditions, transferring employees to more compatible jobs, and altering expectations and perceptions. A number of precautionary actions are recommended to avoid unnecessary employee dissatisfaction.

REVIEW AND DISCUSSION QUESTIONS

1. Define or explain each of the following key terms: *job satisfaction, composite attitude, equity, input, outcome, comparison person, social comparison process, hygiene factor, satisfier, open-ended question, fixed-response question, reference group, core dimensions, intrinsic rewards, extrinsic rewards, nondirective counseling.*
2. Explain discrepancy theory.

3. Under what conditions is an employee likely to perceive pay or some other aspect of the job to be inequitable?
4. What are the different ways an employee can react to inequity?
5. What are the implications of equity theory for employee performance?
6. Explain Herzberg's two-factor theory. How does it differ from traditional views of job attitudes?
7. In what different ways can employee attitudes be measured? What three job satisfaction questionnaires were described in this chapter?
8. What are some determinants of employee satisfaction with compensation? With the supervisor? With the work itself?
9. How are satisfaction and performance related according to Lawler and Porter?
10. What are some typical consequences of employee dissatisfaction?
11. How can an organization improve employee job satisfaction?
12. What is social influence theory?
13. How is job satisfaction related to life satisfaction?
14. Does employee job satisfaction have any important implications for organizational effectiveness?

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4

Communication processes

Communication can be defined as the transmission of information between two or more persons. Communication may also involve information exchange between humans and machines. Communication is a vital process in organizations because it is necessary for effective leadership, planning, control, coordination, training, conflict management, decision making, and other organizational processes. Studies of managerial behavior indicate that the major part of a manager's time at work is spent communicating with other people (Burns, 1954; Kelly, 1964; Mintzberg, 1973).

Although communication is obviously important, there is no comprehensive theory of human communication on which to base the diagnosis and solution of communication problems in organizations. In fact, there is no clearly distinct and unified field of communication. Instead, scientists and practitioners in a variety of disciplines have pursued their separate interests, often without being aware of each other's efforts (Thayer, 1968).

It is not feasible in the space of one chapter to present a comprehensive survey of the diverse and extensive literature on communication. Instead we will introduce the reader to some key concepts and research findings that provide a better understanding of the communication process in organizations. The chapter begins with a discussion of interpersonal communication. Then the focus shifts to organizational communication. The types of communication problems commonly found in organizations are identified, and some approaches for avoiding or coping with these problems are discussed.

NATURE OF INTERPERSONAL COMMUNICATION

Each time a communication episode occurs, we can identify several components of it. There is a "communicator" who wants to send a "message." The message is expressed or "encoded" in terms of some kind of "language." The language may consist of words, mathematical symbols, diagrams, gestures, and so forth. The message is transmitted through some "medium." A variety of communication media are used in organizations, including face-to-face conversation, telephone conversation, written memos, a public-address system, bulletin boards, computer terminals, and many others. There are one or more intended "recipients" of the message. When a recipient receives the message, it is interpreted or "decoded."

Communication objectives

Communication episodes usually have some purpose or objective. The objective of the communicator may be to inform the recipient about something, to influence the recipient's attitudes, to provide psychological support to the recipient, or to influence the recipient's behavior (e.g., request for information, for compliance with an order, or for psychological support). Many communication episodes involve some combination of these different objectives.

The effectiveness of a communicator can be evaluated in terms of how well that person's objectives are attained. The first requirement for successful communication is to get the *attention* of the recipient. If the message is transmitted but the recipient ignores it, the communication effort will fail. Successful communication also depends upon the recipient's *comprehension* of the message. If the recipient does not understand the message, it is unlikely to successfully inform or influence him or her. A final requirement is recipient *acceptance* of the message. Even if a message is understood, the recipient may not believe that the information is true, or that the communicator really means what is said. If the recipient's attention, comprehension, and acceptance of the message can be ensured, the likelihood of achieving the communicator's objectives will be maximized.

One-way and two-way communication

Up to this point, we have described a communication episode in terms of "one-way communication" from the communicator to the recipient. Depending upon the relationship between the communicator and recipient, there may or may not be an opportunity for the recipient to respond to the communicator. When "two-way communication" is possible, a communicator can obtain *feedback* about the consequences of the message. Thus the communicator can evaluate whether or not the recipient paid attention to the message, comprehended it, and accepted it. Acceptance is the hardest to evaluate because the recipient may choose not to reveal whether the message was really believed.

Perception and communication

People respond to their perception of the world rather than to objective conditions as they actually exist. A person can only attend to a small portion of the available sensory stimuli at any moment, and this portion is interpreted in accordance with an individual's expectations, values, and beliefs. Thus human perceptual processes inevitably complicate interpersonal communication.

DETERMINANTS OF ATTENTION Any message sent to a person must compete with other sensory stimuli for the person's attention. A primary determinant of attention is a person's needs and goals. A person will attend to stimuli that are assumed to be relevant for the fulfillment of important needs. Attention is also influenced by beliefs and values. People will often ignore information that is inconsistent with their images of the world or of themselves.

LANGUAGE AND COMPREHENSION Whether a message is comprehended in the manner intended by the communicator will depend upon how the recipient interprets it. The language used in a message seldom has exactly the same meaning to the recipient as it does to the communicator, or to another recipient. Meanings are in people rather than in words or symbols. A word often means different things to the communicator than to the recipient. Or the communicator may use a word or symbol that has several different meanings without indicating which meaning is the intended one. This is illustrated by the case of a sales manager who told the shipping foreman to "rush" an order to an important customer. The sales manager wanted the order shipped by air freight because the customer needed it immediately. The shipping foreman interpreted "rush" to mean sending a special truck, which cost more than air freight and took much longer.

In some cases, the message may contain words that are unfamiliar to the recipients and have no meaning to them (e.g., uncommon words or symbols, technical jargon). An example is provided by the anecdote about a plumber who discovered that hydrochloric acid opened clogged drains and wrote to a government bureau to ask if it was a good thing to use. The reply was as follows: "The efficacy of hydrochloric acid is indisputable, but the corrosive residue is incompatible with metallic permanence." The plumber was not very well educated and interpreted the message to mean that it was all right to use the acid. After he thanked the bureau for their assurance, the bureau sent another message with easier language: "Don't use hydrochloric acid, it eats the hell out of pipes!"

Sometimes a message contains words that unintentionally evoke memories and emotions in the recipient. These associations may bias the recipient's interpretation of the message. For example, in the early years of commercial aviation, a stewardess would tell the passengers: "We're flying through a *storm*. You had better fasten your *safety* belts; it will be less *dangerous*." These instructions caused some passengers to fear that the plane was likely to crash. So the language of the instructions was eventually changed to elicit more pleasant and secure associations. Today the stewardess says: "We're flying through some *turbulence* now; please fasten your *seat* belts; you will be more *comfortable*." (Haney, 1973, p. 443).

Distortion and Rejection Even if the recipient is capable of understanding a message, he or she may distort its meaning if the information is not consistent with the individual's beliefs, values, and self-image. Distortion of a message is easiest when the message is ambiguous. If the recipient cannot distort a disagreeable message, he or she may simply reject it or forget it. For example, if a co-worker suggests a way to improve a person's job performance, and the person perceives the message to be a criticism of his competence, the suggestion may be dismissed as impractical rather than being seriously considered.

Acceptance or rejection of a message can also be influenced by a person's immediate emotional state. A person who is depressed or angry is less likely to listen carefully or to accept reasonable requests or suggestions from others (Strauss & Sayles, 1972).

Evaluation of the Communicator The interpretation and acceptance of a message is partially determined by the recipient's perception of the communicator's intentions. For example, a compliment from somebody who is perceived to desire a favor is less likely to be believed than the same compliment from somebody who has nothing tangible to gain.

Acceptance of a message also depends on how much *credibility* the communicator is perceived to have. A communicator's credibility depends on expertise in the subject of the message and on the extent to which the communicator is trusted by the recipient. A person can create a credibility gap by making careless statements and exaggerated claims, by self-contradiction, by changing positions frequently, by a lack of consistency between words and actions, and by obvious attempts at deception. Finally, message acceptance is more likely when the recipient likes or identifies with the communicator than when the communicator is a stranger or an enemy.

Verbal and nonverbal communication

When two people interact, information about feelings is communicated as well as information about ideas. Information about a person's feelings is conveyed verbally by what the person says and how it is said. The meaning of the words is enhanced by the communicator's tone of voice, inflections, loudness, rate, and timing. A person's feelings are also expressed by a variety of nonverbal cues (Knapp, 1978). In face-to-face conversation, a person communicates feelings and mood through gestures, facial expressions, body movements, posture, physical contact, and eye contact. For example, when students avoid eye contact with the teacher and appear to be busy arranging their notes, they are probably communicating that they do not want the teacher to call upon them. When we are concerned about whether a person likes us, we may become very sensitive to such subtle nonverbal cues as the person's duration of eye contact, how close the person stands while talking to us, the enthusiasm shown in a handshake, and the presence or absence of a smile.

Overt and latent meaning

We typically use our observations of a person's nonverbal actions and manner of speech to help interpret what the person is saying. These cues often enhance the message and provide a better understanding of its real meaning. However, the "latent meaning" conveyed by such cues is not necessarily consistent with the overt message. Occasionally a person says one thing, but the tone of voice, expression, or gestures contradict what is being said. For example, someone may say "That is a fine idea," while the tone of voice and expression indicate disapproval. This type of contradiction does not pose a communication problem as long as the speaker is aware of it and is careful to indicate which message is the correct one (Schein, 1969). However, sometimes a person is not aware of expressing a contradictory latent meaning. He may inadvertently reveal certain feelings that he is trying to conceal from the recipient. For example, a person who is trying to sound very confident may reveal in his stiff posture, nervous movements, and unsteady voice that he is actually quite anxious and insecure. A person who is trying to appear friendly may reveal that he actually feels indifferent or even hostile. Sometimes the latent meaning reflects feelings that the speaker has concealed from himself because he is ashamed of them or finds them to be inconsistent with his self-image.

Status and communication

When two people interact in an organizational setting, their behavior reflects their relative status and power. The high-status person tends to dominate the conversation by asserting personal opinions and interrupting, whereas the low-status person is more inhibited about expressing opinions or interrupting. Furthermore, the low-status person usually tries to make a good impression on the high-status person by offering praise, showing respect, and agreeing with that person's views, or at least by avoiding overt disagreement (Cohen, 1958; Jones, Gergen & Jones, 1963; Kelley, 1951). The status difference between two persons who interact is reflected also in such nonverbal behavior as posture and eye contact. The low-status person is likely to have a rigid posture and to gaze more attentively at the high status person when listening to him or her (Exline, 1971). The higher-status person tends to be more relaxed and is more likely to gaze at the low-status person when speaking than when listening.

People with low status usually prefer to interact with a high-status person rather than with other persons of low status, even though it is necessary to show deference and be careful about what one says. Lawler, Porter, and Tennenbaum (1968) found that managers judged communication with their boss to be more satisfying and valuable than communication with subordinates. However, high-status persons would rather interact with each other than with low-status persons (Allen & Cohen, 1969; Hurwitz, Zander, & Hymovitch, 1953).

ORGANIZATIONAL COMMUNICATION NETWORKS

A communication network is a system of information processing and decision-making centers connected by some configuration of communication channels. The system is designed to acquire, transport, and process information. Information processing includes such things as analysis, rearrangement, duplication, storage, and retrieval of information. The information received in the decision centers is used to regulate and coordinate the internal activities of the organization and to achieve adaptation to the external environment.

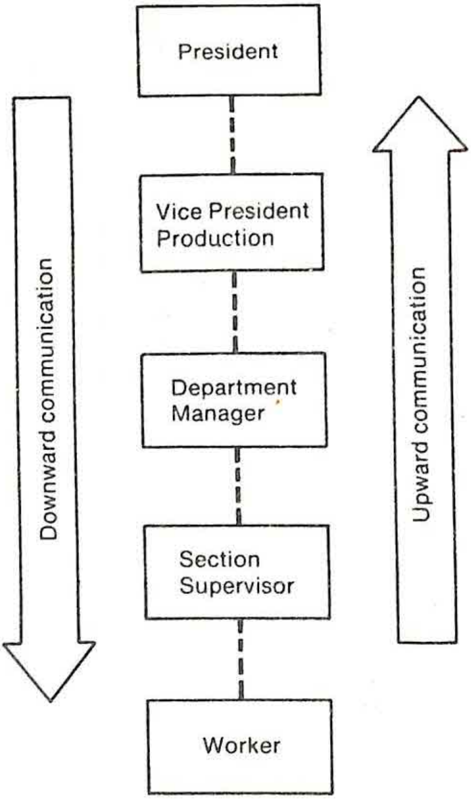
The formal communication network in an organization prescribes and limits the flow of information among organizational personnel. Without some restrictions and the specification of appropriate channels and types of messages, there would be complete chaos The situation would be analogous to a meeting in a room where everybody is trying to talk at the same time.

It is easier to understand the function of an organization's communication network if we distinguish between upward, downward, and lateral communication. Each has a somewhat different function in organizations.

Downward communication

Downward communication flows from top management to middle management, to lower-level management, and finally to nonsupervisory personnel (see Figure 4–1). The functions of downward communication include: direction, instruction, indoctrination, inspiration, and evaluation. Orders and instructions usually become more detailed and specific as they are interpreted by each intermediate level in the authority hierarchy. The managers at each level act as filters in determining how much of the information they receive from upper levels will be passed on to subordinates. In addition to orders and instructions, downward communication may include information about organizational goals, policy, rules, restrictions, incentives, benefits, and

FIGURE 4–1
An example of upward and downward communication through the chain of command



privileges. Finally, subordinates may receive feedback about how well they are performing their jobs.

Face-to-face meetings, telephones, and written memos or directives are the media most often used for downward communication. However, many other communication media are available, including bulletin boards and posters, letters to employees' homes, inserts in pay envelopes, pamphlets, employee handbooks, procedural manuals, orientation and training films or videotapes, an organization magazine or newsletter, and published annual reports. Although used less often, these media may be important supplementary channels of downward communication.

Upward communication

Upward communication flows from lower to higher levels of the authority hierarchy, usually along the chain of command. The primary function of upward communication is to obtain information about the activities, decisions, and performance of lower-level personnel. Upward communication may include: performance reports, suggestions and recommendations, budget proposals, opinions, complaints, and requests for assistance or instructions. As in the case of downward communication, personnel at intermediate levels in the authority hierarchy act as filters of the information channeled through them. They integrate, condense, and summarize information about events and performance at lower levels.

The media used for most upward communication are face-to-face meetings, written reports and memos, and the telephone. Some organizations also use such other media as questionnaire surveys, special meetings with employees, meetings with labor union representatives, a grievance system, exit interviews with departing employees, and special investigating committees.

Lateral communication

Lateral communication occurs between persons who are at the same level in the authority hierarchy ("horizontal communication") or between persons at different levels who have no direct authority over each other ("diagonal communication"). Horizontal and diagonal communication are illustrated in Figures 4–2 and 4–3. Lateral communication occurs regularly among employees who work together as a team, between members of different work groups with interdependent tasks, between members of separate functional departments, and between line and staff personnel. The pattern of lateral communication is closely related to the workflow in the organization (Landsberger, 1961; Sayles,

FIGURE 4–2
An example of horizontal communication

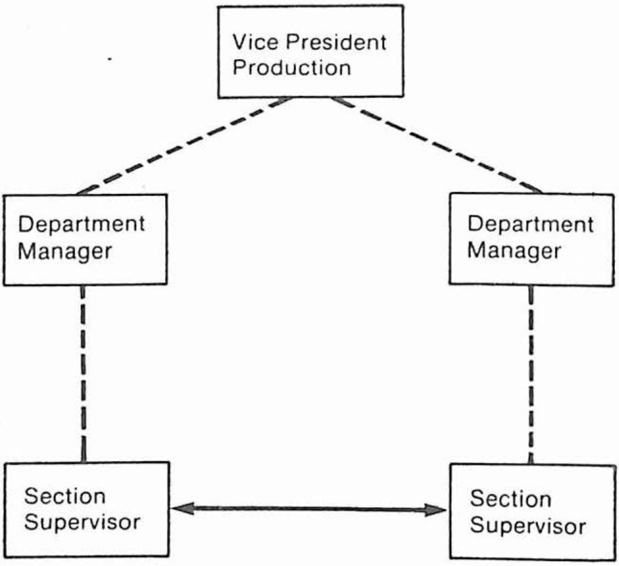
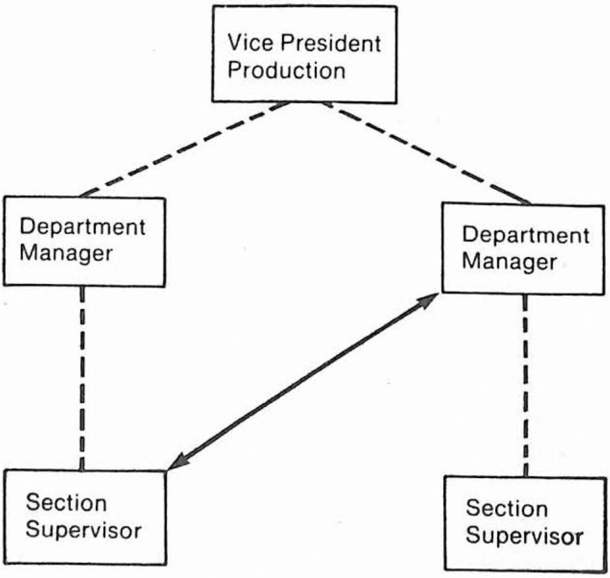


FIGURE 4–3
An example of diagonal communication



1958). The media used most often for lateral communication are face-to-face meetings, the telephone, and written memos, job orders, and requisition forms.

The primary function of lateral communication in the formal communication network is coordination and problem solving (Landsberger, 1961; Simpson, 1959). Lateral communication is faster and more direct than communication through a common superior in the chain of command. For example, if the two section supervisors in Figure 4–2 communicate through the chain of command, each message must be sent up to a department manager, then up to the vice president of production (the common superior), then down to the other department manager, and finally down to the other section supervisor. If the two supervisors have periodic problems that they are able to deal with effectively by themselves, direct lateral communication is likely to be used, especially when immediate solutions are needed. However, it is usually advisable to keep superiors informed so that they can monitor developments and retain effective control.

Informal communication

The communication process in organizations includes informal communication as well as formal communication. Informal communication, which is sometimes referred to as the "grapevine," occurs outside of prescribed channels. It is carried out by means of face-to-face interaction and occasionally by telephone.

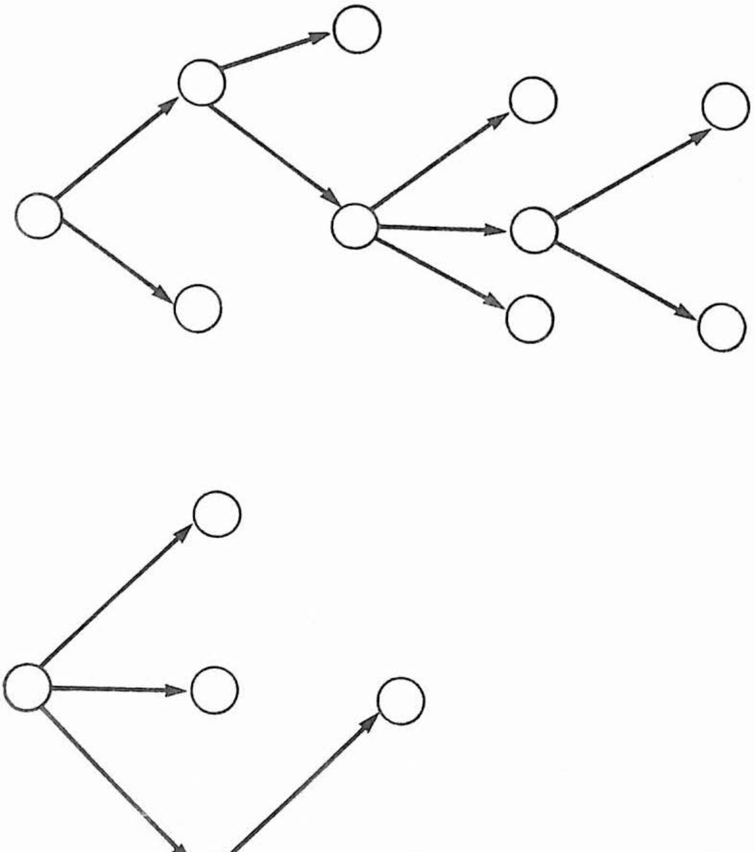
A major function of informal communication is the maintenance of social relationships (e.g., personal friendships, informal groups) and the distribution of personal information, gossip, and rumors. Informal communication may also be task related. Since the formal communication network seldom distributes sufficient task information, some informal channels usually emerge to fill the void. For example, informal lateral communication usually occurs where it is essential for coordination and where formal lateral channels have not been provided (Wickesberg, 1968). In addition, the grapevine may be used by top management to "get the word around" quickly and to make unofficial announcements (e.g., intentional leaks and off-the-record statements).

The grapevine has not been studied extensively, but a few studies provide some insight into how it operates (Davis, 1953; Jacobson & Seashore, 1951; Sutton & Porter, 1968). One salient characteristic of the grapevine is its speed. Messages typically travel much faster in the grapevine than through formal channels. The grapevine is also selective. Although some violations of confidentiality occur, information is usually not shared indiscriminately with inappropriate persons (Davis, 1953).

In the grapevine, information is usually passed along by only a few of the people who receive it. Thus the typical pattern of transmission is a "cluster chain" like those shown in Figure 4–4. Someone who passes on the information to several other people is called a "liaison individual." In the governmental agency studied by Sutton and Porter (1968), a small number of persons consistently acted as liaison individuals. In the manufacturing company studied by Davis (1953), different types of information were passed on by different liaison individuals. Liaison individuals are most likely to pass on information about a job function in which they are interested or information about someone that they know personally. The more recent the information, the greater the likelihood that a person will pass it on.

Persons at higher levels in the authority hierarchy receive more information through the grapevine than persons at lower levels. In the

FIGURE 4–4
Examples of cluster chains in the grapevine



company studied by Davis, the predominant flow of communication was downward and horizontal. If an event happened at a lower level, news of it usually flowed upward to a person at a high level, then it spread downward and horizontally. People who are geographically isolated ("isolates") and people with low status are less likely to receive grapevine information and, if they get it at all, it will be late.

The grapevine can have both positive and negative consequences for the organization. It can transmit disruptive rumors and malicious gossip, but it can also serve as an important supplement to the formal communication system. Moreover, it is essential for the development and maintenance of social relationships. Thus managers and administrators should recognize the existence of the grapevine in their organizations and attempt to utilize it constructively.

Criteria of network effectiveness

Communication networks reflect the communication requirements created by the organization's functions, technology, and authority structure (Galbraith, 1973; Hage, Aiken & Marrett, 1971; Simpson, 1959). However, the extent to which the communication network meets these requirements varies from organization to organization. Some organizations have very effective communication networks, and other organizations suffer with chronic communication problems.

The most obvious criterion of effectiveness is *network efficiency*. An efficient communication network is one that provides accurate and relevant information to persons who need it, when they need it. An additional criterion is *network economy*. An economical network is one in which information is acquired and distributed at a minimal cost. Still another criterion is the *satisfaction* of organization members. Research indicates that some types of networks are more satisfying to participants than other types (Shaw, 1964; Smith & Brown, 1964).

These three criteria are not necessarily compatible. Depending on the type of task, the network that is most efficient may not be most economical or most satisfying to participants. The most comprehensive criterion of network effectiveness is probably the long-term, overall contribution to the attainment of organization goals. Needless to say, this general criterion is more difficult to measure than are efficiency, economy, and participant satisfaction.

TASK CHARACTERISTICS AND COMMUNICATION

The communication network in a work group has implications for group performance, leadership emergence, and member satisfaction.

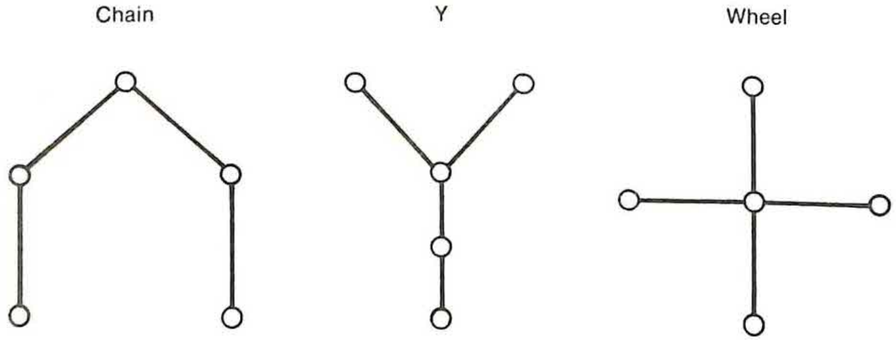
These implications have been investigated in both laboratory and field research.

Laboratory research on communication networks

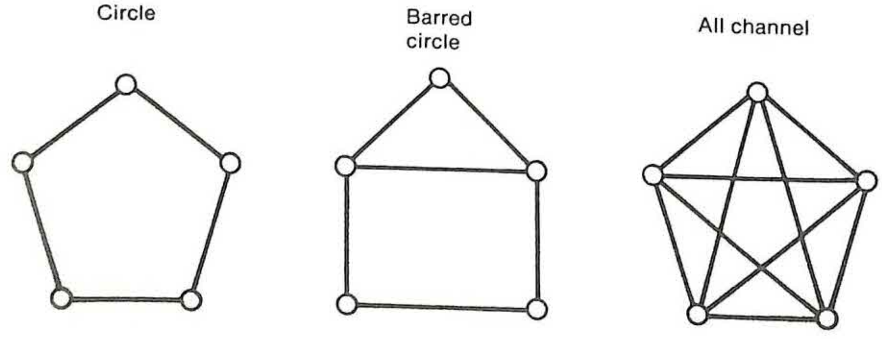
Early research on communication was usually conducted in a laboratory setting, where communication channels are easily manipulated and controlled (Bavelas, 1950; Leavitt, 1951). In much of this research, the focus was on the comparative effects of centralized and decentralized networks. A centralized network is one in which communication among group members is restricted to a few channels, and most exchanges of information must flow through a central position in the network. Some examples of centralized networks for a five-person group are shown in Figure 4–5. In a centralized network, such as the *wheel,* the person (sometimes called a "star") occupying the central

FIGURE 4–5
Examples of centralized and decentralized communication networks

A. Centralized networks:



B. Decentralized networks:



position has greater access to information and more control over the distribution of information. Consequently, this person is likely to emerge as the group leader and assume major responsibility for problem solving and decision making. Satisfaction with the task is likely to be high for the central position and much lower for the peripheral positions.

In a decentralized network, more channels are available for communication among group members, and no person has a significant information advantage. Some examples of decentralized networks are shown in Figure 4–5. The *all-channel* network is the most decentralized one because each person is able to talk to all of the other group members directly. In decentralized networks, responsibility for problem solving and decision making is likely to be shared by group members rather than concentrated in a dominant leader. The number of messages exchanged is likely to be greater, and group members are likely to be more satisfied in general with the task (Shaw, 1964).

The effectiveness of different networks depends on the nature of the task. Centralized networks are faster and more error-free for simple, structured problems having an obvious correct solution that can be found by systematic analysis of the available information. In contrast, for complex, unstructured problems with a number of possible solutions, groups with decentralized networks perform better (Shaw, 1964). Decentralized networks allow greater utilization of the knowledge and skills of different members of the group. There is more opportunity for feedback and error correction, and more synthesis of diverse ideas and viewpoints is likely (Tushman, 1979a, 1979b). Furthermore, decentralized networks are less dependent on any single individual, and they are less susceptible to saturation effects than are centralized networks—where information overload is likely for the person occupying the central position when the task is complex. When a person becomes overloaded, the quality of decisions declines because decisions are more likely to be influenced by irrelevant information (O'Reilly, 1980).

The findings from laboratory studies of communication under controlled conditions do not necessarily apply to work groups that are able to modify their communication network. The effects of formally specified communication networks are largely nullified by emergent patterns that develop in response to the demands of the group's immediate task (Porter & Roberts, 1976). In a few of the laboratory studies in which groups had the time and opportunity to modify their initial communication network, the groups tended to develop a network that was more appropriate for the task at hand (Faucheux & MacKenzie, 1966; Guetzkow & Simon, 1955; Mulder, 1960).

Network analysis in field research

Field research on emergent communication networks has been limited until recently by the difficulties encountered in analyzing the complex patterns of interaction found in real organizations. New, computer-based methods of network analysis have made this kind of research more feasible and productive (Tichy, 1981). The analytical methods are versatile and can be applied to measures of different kinds of patterned relationships, such as exchanges of information, influence, affect (liking), and commodities or services. The "nodes" of a network may be individuals, groups, or separate organizations. However, for communication research, the usual approach is to analyze frequency of interaction between pairs of individuals to identify clusters composed of persons who interact regularly (e.g., cliques and coalitions), as well as other key positions in the network (e.g., liaison persons, isolates, and stars). The resulting communication pattern can be superimposed upon the formal organization chart to determine how closely the emergent network approximates the formally prescribed network. In addition, the communication network can be compared with networks describing influence relationships, work-flow patterns, and friendship patterns (Tichy, Tushman, & Fombrun, 1979).

An example of the application of network analysis to organizational communication is provided by a field study comparing communication patterns in two types of projects (research and technical service) within the research and development facility of a large U.S. corporation (Katz & Tushman, 1979; Tushman, 1978, 1979a, 1979b). The mission of the research projects was to develop and evaluate new knowledge with broad applications. The mission of the technical service projects was to improve existing products and processes using existing knowledge. As expected, high-performing research projects had more intraproject communication and a decentralized communication pattern consistent with their complex, creative task. Technical service projects had a more centralized communication pattern and less intraproject communication, consistent with their relatively structured task. External communication patterns were also affected by the nature of the project task. Research projects had more contact with other projects in the laboratory and with outside professionals and consultants in universities and professional societies. These contacts provide an important source of technical and scientific ideas and information. For the effective research projects, the external contacts were usually made directly by project members rather than by the project leader. Technical service projects had more contact with other parts of the organization affected by these projects, such as marketing and manufacturing, and with outside customers, suppliers, and vendors. In the most effective of these projects, the external contacts were usually handled by boundary-role individuals, such as the project leader.

COMMUNICATION PROBLEMS AND REMEDIES

Inefficient communication may be caused by many different kinds of human and technical problems. In this section we will examine four kinds of human communication problems that frequently occur in organizations. The problems include: (1) incomplete comprehension, (2) overloading, (3) insufficient upward communication, and (4) insufficient downward communication. Some potential remedies and preventative measures will also be examined.

Incomplete comprehension

We now have the technology to transmit a message quickly to almost anywhere on the earth, or even to the moon, but there is no way to ensure that the person who receives the message will understand it. As we saw earlier in this chapter, there are many reasons a person may fail to interpret a message correctly. There are no magic techniques to guarantee that none of these things will happen. Nevertheless, some guidelines can be observed to increase the probability of message comprehension.

Determine Objectives and Analyze Situation The first step for a communicator is to determine the objectives of the communication. Then the communicator should analyze the situation, taking into account both the nature of the intended recipients and the available media, channels of communication, time constraints, and so forth. The structure and language of the message and the medium used to transmit it should be suited to the objectives, recipients, and situation (Thayer, 1968). The communicator should try to anticipate what communication problems are likely to occur and take steps to avoid them.

Use Simple Language Messages with a few ideas are usually easier to understand than long messages with many different ideas. Simple, direct language is usually better than vague, difficult language. The reading ease of a written message can be measured by means of the *Flesch formula* (Flesch, 1948). Careful attention to language is especially important when management is preparing written communications to workers with little education. Davis (1968b) measured the reading ease of employee handbooks used in several large corporations and found that most of the handbooks were too difficult for employees to comprehend.

USE REDUNDANCY Another characteristic of the message that is likely to affect recipient comprehension is the amount of redundancy it contains. Redundancy means repeating the message or restating it in a different way. Some redundancy will improve the likelihood of recipient comprehension, but as usual, the appropriate degree and form of redundancy will depend on the specific situation.

ENSURE APPROPRIATE FEEDBACK In most cases it is advisable to provide for some form of feedback to determine whether or not the message was received and understood, especially if the message is complex. If feedback reveals incomplete comprehension or lack of acceptance, the communicator can then try again. There are several ways a communicator can obtain feedback about recipient comprehension, and some approaches are better than others. The communicator can ask if the recipient understood the message or can invite questions about the message. Neither of these approaches will be useful unless the recipient realizes that he or she did not interpret the message correctly and is willing to admit failure to understand it. The communicator can ask the recipient to repeat the message, but this will only reveal whether it was received intact, not whether it was understood. If face-to-face communication is used, the communicator can observe the recipient in an attempt to detect subtle cues indicating comprehension and acceptance of the message.

The best approach in most situations is to ask the recipient *what* was understood (Berlo, 1960). The recipient is invited to restate the message in his or her own words, and if the message is an order or request, the recipient can be invited to say what actions will be taken. A related approach that is sometimes appropriate is to ask the recipient specific questions about the message to test for comprehension.

When there is two-way communication with unrestricted opportunity for feedback, the result will usually be greater recipient satisfaction with the interaction, as well as better comprehension of the message (Leavitt & Mueller, 1951). With one-way communication, the recipient may be anxious about whether he or she understood the message and may be frustrated about not being able to respond. A limitation of two-way communication is that it is usually more time-consuming than one-way communication.

BUILD RECIPIENT SKILLS Improving the communication of information between two persons should not be regarded as simply a matter of increasing the communicator's skill. A person's skill as a recipient of information can also be increased. For example, training can be provided in "effective listening." A person can learn to pay attention, show interest, avoid premature evaluation of the communicator or the message, and avoid premature conclusions about what the speaker is going to say. Training can also be provided in the use of feedback techniques, such as restating or summarizing what the communicator has said and asking questions that do not intimidate the communicator (Strauss & Sayles, 1972).

Overloading

Communication inefficiency in a network may be caused by distribution of too much information as well as by too little information. A person has a certain capacity for decoding incoming messages, and if this capacity is exceeded, the person becomes "overloaded." This problem is likely to occur with top administrators and executives in a growing organization as the quantity of upward communication increases. Overloading is also a problem for scientists and certain technical specialists who are trying to cope with the "knowledge explosion." There are several different ways of responding to overloading (Katz & Kahn, 1966; Miller, 1960). Short-term measures include filtering and queuing; more drastic measures include special training and information reduction through structural changes.

FILTERING One response to overloading is to reject certain messages on the basis of their source, medium, or an estimate of likely relevance. For example, the recipient may discard junk mail and certain kinds of reports and correspondence, or refuse to accept calls from or make appointments with certain types of persons. Filtering may also include ignoring certain parts of a long message, such as parts that are difficult to comprehend, or parts that the communicator believes are redundant with information already received. The limitations of filtering is that, unless the recipient is able to make accurate judgments about relevance, some important information will be inadvertently rejected.

QUEUING Another possible response to overloading is to postpone the processing of low-priority messages until a slack period. For example, some written messages can be put in the person's "hold" box, and some calls, appointments, and meetings can be postponed or rescheduled for a later time. The effectiveness of queuing will depend on the accuracy of a person's judgments about message priority and on the availability of periodic slack periods in which to process deferred messages.

INCREASE INFORMATION PROCESSING CAPACITY If an overloaded recipient tries to speed up processing of messages, the number of interpretation errors is likely to increase. However, with special training, some speedup is usually possible without loss of comprehension. The information processing capacity of a person can often be increased with training in speed-reading, report analysis, memorizing, stenography, or effective interviewing. Another way to increase informatio. processing capacity is through the use of computers. They can provide valuable assistance in analyzing quantitative data and presenting statistical summaries, graphical displays, and projected outcomes.

INFORMATION REDUCTION The amount of information sent to an overloaded person can be reduced by changes in communication procedures or by changes in the structure of the communication network. The quantity and length of reports and memos can be restricted, the number of meetings can be reduced, and appointments or telephone calls can be limited to certain time periods during the day. More intermediary personnel ("gatekeepers") can be added to summarize incoming information, filter out trivial messages, and make decisions about routine matters. Examples of gatekeepers include staff advisors, administrative assistants, and appointments secretaries. The amount of information received by an overloaded manager can also be reduced by delegating more decisions to individuals or groups at lower levels in the authority hierarchy. A more drastic structural change is the subdivision of an overloaded person's job into two separate jobs, each performed by a different person who would only receive information relevant to his or her specialized functions. In planning structural changes, it is important to remember that other issues besides information processing should be taken into account (see Chapters 10 and 11).

Insufficient upward communication

Research in industrial organizations reveals that insufficient upward communication is a common problem. In one study with a large sample of workers, foremen, and general foremen, each person was asked to indicate what he wanted from a job (Kahn, 1958). In addition, the foremen were asked to estimate how their subordinates would answer the question, and general foremen were asked to estimate how the foremen would answer it. The foremen overestimated the importance of pay and security to the workers and underestimated the importance workers attached to job content and relations with coworkers. The general foremen made the same mistake in estimating the attitudes of the foremen. Thus at each level of management, the boss did not understand his subordinates' attitudes and had an uncomplimentary stereotype of the subordinates.

In another study, upper-level managers in five companies and one subordinate of each manager were interviewed to determine their perception of the subordinate's job (Maier, Hoffman, Hoover, & Read, 1961). There was little agreement between boss and subordinate about what specific duties were performed by the subordinates or about the problems encountered by the subordinates (who were also managers) in their jobs. Apparently this information was not communicated to the managers by their subordinates.

Some reasons subordinates don't speak up were revealed in a study of supervisors, engineers, white-collar workers, and blue-collar workers in eight companies (Vogel, 1967). A large majority of the sample believed that their boss was not interested in their problems and that they would get into "a lot of trouble" if they were completely open with their boss. Some other studies indicate that upward communication is least likely to be accurate when: (1) subordinates are ambitious for advancement, (2) subordinates perceive their boss to have substantial control over desired outcomes (e.g., retention, promotion, pay increase), (3) subordinates do not trust their boss, and (4) subordinates feel insecure (Athanassiades, 1973; Cohen, 1958; O'Reilly and Roberts, 1974; Read, 1962).

Upward communication is unlikely to be improved if management is unaware that there is a problem. Unfortunately, managers tend to overestimate their understanding of subordinate needs, attitudes, and job difficulties. In one study, 95 percent of the foremen said they understood the workers' problems well, but only 34 percent of the workers agreed that the foremen understood their problems well. Similarly, 90 percent of the general foremen said they understood the foremen's problems well, but only 51 percent of the foremen agreed (Hamann, 1956). Thus an effort should be made to periodically assess the effectiveness of upward communication rather than assuming that it is adequate.

Upward communication can be evaluated by conducting a survey of employee attitudes with questionnaires or with interviews by an outside consultant to see if these attitudes differ from management's assumptions about lower-level employees. Organization development techniques also have as one of their objectives the detection of communication problems and the improvement of superior-subordinate communication (see Chapter 12).

When subordinates cover up mistakes and difficulties, their boss will not have accurate information on which to base decisions, nor be able to help subordinates deal with their job problems. This is a serious communication failure, and there are two general approaches for dealing with it. One approach assumes that subordinates cannot be trusted to communicate accurate information and it must therefore be obtained from independent sources. Special personnel, such as quality control inspectors, investigators, financial auditors, and informants, are used to keep track of subordinate performance, detect mistakes, and uncover improper conduct. As managers become more proficient at operating computer terminals, it will become easier for them to monitor operations and detect problems at lower levels. A middle- or upper-level manager can access operating data in the computer and subject it to his/her own analyses, rather than having to rely on summary reports filtered up the hierarchy. The existence of alternate sources of information should by itself reduce subordinate attempts to cover up problems and mistakes. The subordinates will discover that it is better to reveal unfavorable information to their boss than for the boss to hear about it from another source.

A quite different approach for improving upward communication is to try to develop a relationship of trust and openness between personnel at each level in the organization. If such a climate is to be created, a manager must be nonpunitive and problem oriented when a subordinate has difficulties or makes mistakes. Instead of criticizing the subordinate when a mistake is made, the manager helps the individual in solving the problem and planning ways to avoid similar mistakes in the future. The subordinate is judged according to his or her progress in learning to cope with job responsibilities over a reasonably long period of time, rather than on short-term performance. One way of applying these prescriptions is in a Management by Objectives program (see Chapter 12). Managers who desire to develop subordinates and to utilize them as a source of ideas and advice will find the human relations approach to be more appropriate. If subordinates do not trust their boss and are afraid of being punished for revealing their real opinions, they will say only what they think the boss wants to hear, or they will simply avoid offering any opinions and suggestions.

A number of other human relations approaches for improving upward communication have been used successfully (Fenn & Yankelovich, 1972; Harriman, 1974). One approach is to invite employees to use special forms to raise questions or voice their concerns. Answers from management are published in the organization's newsletter or sent directly to the concerned employee. A variation of this approach is to set aside certain times each month when executives will be available to answer telephone calls from employees. There is usually a time limit on these calls, but any unanswered questions can be followed up by a written response. Holding regular open meetings between management and employees or their elected representatives is another approach. The agenda for these meetings may include issues and questions submitted either by management or by employees. The agenda and subsequent resolution of issues is published or posted to keep employees informed. A less formal version of this approach is simply to have regular joint coffee breaks or lunches attended both by the management and the employees of an organizational subunit. Still another approach is to establish a corps of ombudsmen to hear employee complaints and grievances and intervene on behalf of distressed employees.

Insufficient downward communication

Downward communication is inadequate when a manager fails to transmit relevant information to subordinates. In some cases, the information originates at the top of the authority hierarchy, and middle managers fail to pass it on to lower-level personnel. An example of this kind of downward "filtering" is provided by a study conducted in one plant of a large manufacturing company (Davis, 1968a). Top management held a meeting with the middle managers and told them about a change in the parking lot and tentative plans for layoffs of personnel. The middle managers were instructed to relay the information along to the foremen below them, who would then relay it to the assistant foremen. The layoff information was passed on to 94 percent of the foremen and to 70 percent of the assistant foremen. The parking information was passed on to 38 percent of the foremen and to 15 percent of the assistant foremen. Downward filtering was greater for the parking information, because it was less important and not directly relevant to production. Similar results have been found in a study conducted in a retail merchandising organization (Sanborn, 1961).

Managers tend to overestimate the effectiveness of their downward communication, just as they tend to overestimate the effectiveness of upward communication from subordinates. In a study conducted in a public utility, 92 percent of the foremen said that they always or nearly always told workers in advance about changes that would affect them or their work. However, only 47 percent of the workers said they were nearly always informed about changes in advance. Similarly, 100 percent of top managers said they always or nearly always informed the foremen about changes in advance, but only 63 percent of the foremen agreed (Likert, 1961, p. 52). As in the case of upward communication, there is not likely to be any improvement in downward communication unless management is aware that there is a problem. Thus it would be advantageous to conduct periodic surveys of personnel at each level to see if they perceive downward communication to be adequate.

Some filtering in downward communication can be avoided by using appropriate media. When information is communicated orally, the more links in the communication chain, the greater the chance that information will be lost or distorted. For messages that do not need to be translated and elaborated for lower-level personnel, it is often advisable to use written media. For example, the parking information in the Davis (1968a) study described earlier would have been more effectively disseminated by written notices to all of the supervisors. Written media are especially appropriate for lengthy and detailed messages and for messages of a very formal nature. However, for messages that need to be translated and explained to recipients with varying orientations and expertise, oral media are usually superior. Oral messages are also superior when immediate reactions and feedback are desired from recipients. One way to overcome the limitations of each type of media is to use a combination of oral and written messages. For example, a meeting can be held to announce major decisions and policy changes, and a detailed written statement for individual study and future reference can be distributed either before or after the meeting. Research suggests that use of multiple media increases the likelihood that a message will be received and comprehended (Dahle, 1954).

Lack of sufficient downward communication sometimes occurs because a manager is not aware that the information would help subordinates in the performance of their duties. Many managers do not realize the importance of clarifying subordinate role requirements, instructing subordinates in job procedures, and providing relevant performance feedback. Management training can be carried out to educate managers about the importance of providing more information to subordinates. An attempt can also be made to facilitate downward communication by formalizing performance feedback and joint problem solving, as for example in a Management by Objectives program (see Chapter 12).

Another reason a manager may withhold information from subordinates is that he/she feels insecure and wants to maintain control. Such a manager will try to keep subordinates dependent on him/her for guidance and will try to prevent subordinates from obtaining enough information to criticize the manager's decisions. Improvement in downward communication will be unlikely unless the attitudes of the insecure manager can be changed. Sensitivity training and some organization development techniques may be helpful in this respect. The alternative of bypassing the manager with direct communication of certain information to subordinates can be used, but it will tend to undermine the manager's authority.

Achieving effective communication in organizations

Communication can be improved in organizations by designing communication networks that acquire and distribute relevant information to decision centers efficiently and economically. Improvements can also be obtained by training personnel to use a communication network effectively. Network design and personnel training are complementary approaches that should be used together.

It is better to conduct a systematic and comprehensive assessment of an organization's communication effectiveness than to wait until communication breakdowns occur and try to deal with each one separately. Any specific communication breakdown may be part of a broader problem of inappropriate network design or inadequate training. Several types of communication problems may be interrelated, and efforts to solve one problem may create or aggravate other problems. For example, use of gatekeepers to reduce overloading may result in excessive filtering in upward communication. Or use of extensive redundancy to improve reliability of transmission and comprehension may increase any overloading problems that exist for recipients, as well as increasing communication costs.

Some "communication breakdowns" will turn out to be merely the symptoms of a different kind of problem, such as interpersonal or intergroup conflict. Here the solution lies not in steps to improve communication, but rather in steps to solve the underlying problem itself. Once this problem is solved, the communication difficulties are likely to disappear (Shutz, 1958).

SUMMARY

Communication is a vital process in organizations because it is essential for all other organizational processes. Communication networks in organizations acquire and distribute information to information-processing and decision-making centers. Upward communication provides top-level decision makers with information about the activities, performance, attitudes, and needs of lower-level personnel. Downward communication conveys orders, instructions, performance feedback, and general information to lower-level personnel. Lateral communication facilitates coordination and problem solving. Informal communication supplements the formal communication network, serving both task-related and social-maintenance functions.

Interpersonal communication is complicated by human perceptual processes. Messages must compete for a person's attention and may be ignored if perceived to be irrelevant or unfavorable. The language of the message will determine to a large extent whether it is comprehended. The recipient's acceptance of the message will be influenced by perception of the communicator's intentions and credibility, as well as by the message content.

Communication failure due to incomplete comprehension can be minimized if the message content and transmission media are compatible with the recipients, the situation, and the communicator's objectives. Comprehension is facilitated by simple, direct language, ample redundancy, and provision for feedback.

Insufficient upward communication is a widespread and serious problem in authority hierarchies. Two different approaches for improving upward communication are (1) use of independent information sources and (2) development of a climate of mutual trust and problem solving.

Insufficient downward communication is likely when managers are not sensitive to the information needs of subordinates or attempt to retain control by deliberate hoarding of information. The use of appropriate media can help to reduce downward filtering and distortion of messages. Managerial training and formalized information-sharing procedures are additional remedies for insufficient downward communication.

Improvements in an organization's communication processes are more likely when a systems approach is used, rather than dealing with individual problems separately. Communication problems are often related to each other and to other kinds of problems. Finally, communication is more likely to be effective if the communication network is consistent with the information-processing requirements of the task.

REVIEW AND DISCUSSION QUESTIONS

1. Define or explain each of the following key terms: *communication, attention, message comprehension, message acceptance, media, one- and two-way communication, feedback, credibility, verbal and nonverbal communication, overt and latent meaning, upward communication, downward communication, lateral communication, horizontal communication, diagonal communication, informal communication, the grapevine, communication network, redundancy, overloading, filtering, queuing, gatekeepers, centralized networks, liaison person.*
2. Explain this statement: People respond to their perceived world rather than to objective conditions. What is the significance of this for communication in organizations?
3. What are major functions of upward, downward, and lateral communication?
4. What are some positive and negative consequences of the grapevine in organizations? What position should management take regarding the grapevine?
5. What are the criteria by which a communication network can be evaluated?
6. What are some common communication problems in organizations? For each type of problem, describe some possible remedies.
7. What general strategy should an organization pursue to maintain effective communication?
8. What was learned from laboratory research on communication networks in small groups?
9. What is network analysis, and how is it used in communication research?
10. How are computers likely to affect communication in organizations?

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5

Decision making in organizations

Decision making is one of the most important and least understood processes in organizations. There is no process more vital and pervasive than decision making. Yet even top executives do not know how they actually make the decisions that determine the fate of their organizations. Until recently, research on decision making has not received the attention that it deserves. Decision making is a subject that spans several disciplines, including economics, management, political science, psychology, sociology, and statistics. Much of the research has been fragmented and narrowly focused on the concerns of a particular discipline. Consequently, integration of research findings across disciplines has been impeded.

This chapter will examine what is known about human decision making in organizations. The focus is both descriptive and prescriptive. That is, we will review research and theory describing how decisions are typically made, but we also examine some of the literature on how decisions should be made. Some researchers study decision making by a single individual, some study decisions made by groups, and some study organizational decisions that typically involve the participation of many individuals and groups. Since individual decisions are the easiest to understand, we will begin this chapter by examining what is known about individual decision making. Then the discussion will shift to organizational decision making. Group decision making will be dealt with in the next chapter.

MEANING OF RATIONALITY

One common criterion for evaluating a decision is in terms of rationality. However, there is a lack of consensus about the best way to define *rationality*. For example, rationality can be either objective or subjective. Objective rationality is achieved only when a decision maker selects the course of action that maximizes objectively measured gains, such as profits and return on investment (Simon, 1957b). Subjective rationality is achieved when a decision maker selects the course of action that will maximize subjectively perceived gains. Although perceived gains may be influenced by objective gains, they are seldom equivalent. Subjective gains typically include a broader range of outcomes, such as self-approval and social approval, which cannot be measured in an objective manner. For example, a person may sell his or her services at a lower price than is possible because the person believes that a higher price would be unfair. If this decision resulted in lower profits, it would not be objectively rational, but it might be subjectively rational to the person when all relevant outcomes are taken into account.

Another way to define rationality is in terms of the decision procedures used, rather than in terms of objective or subjective gains (Eilon, 1969). A rational decision by this definition is one made with an orderly, systematic process of analysis, judgment, and choice. Janis and Mann (1977, p. 11) recommend seven criteria for judging the quality of decision behavior:

> The decision maker to the best of his ability and within his information-processing capabilities:
>
> 1. Thoroughly canvasses a wide range of alternative courses of action.
> 2. Surveys the full range of objectives to be fulfilled and the values implicated by the choice.
> 3. Carefully weighs whatever he knows about the costs and risks of negative consequences, as well as the positive consequences, that could flow from each alternative.
> 4. Intensively searches for new information relevant to further evaluation of the alternatives.
> 5. Correctly assimilates and takes account of any new information or expert judgment to which he is exposed, even when the information or judgment does not support the course of action he initially prefers.
> 6. Reexamines the positive and negative consequences of all known alternatives, including those originally regarded as unacceptable, before making a final choice.
> 7. Makes detailed provisions for implementing or executing the chosen course of action, with special attention to contingency plans that might be required if various known risks were to materialize.

A decision process that meets these seven criteria will not necessarily maximize subjective gains, but it will tend to do so. The decision maker is less likely to overlook good solutions or to make serious miscalculations that jeopardize either immediate objectives or long-term values. Negative consequences of the chosen alternative are less likely to be overlooked, and unanticipated losses are less likely to be suffered. Thus the decision maker is much less likely to experience postdecisional regret about the choice.

Janis and Mann prefer to avoid use of the term *rationality*. They argue that *rational, irrational,* and *nonrational* are imprecise terms with too many extraneous connotations to be useful for classifying decisions. Most decisions cannot be accurately characterized as either rational or irrational; rather they fall somewhere along a continuum between these two extremes. Janis and Mann propose that a decision should be evaluated only in terms of how closely the decision procedure meets their seven criteria.

RATIONAL-CHOICE MODELS

Rational-choice models specify how to make decisions that will maximize objective or subjective rationality. As Harrison (1981) points out, rational models are the traditional or classical approach to decision making initially formulated by economists. Rational-choice models are highly quantitative, and if a variable cannot be given a numerical value, it is disregarded. All of the rational-choice models share some highly restrictive assumptions.

Assumptions about information

Rational-choice models assume that complete information about alternatives and consequences is available. Early models assumed that a decision maker is aware of all possible solutions to a problem and knows for certain the consequences of each alternative course of action. These assumptions are obviously unrealistic, and in more recent rational-choice models they have been relaxed somewhat. Instead of assuming that all solutions are known in advance, it is only assumed that these solutions can be discovered through a process of search. Since there are costs and delays involved in searching for alternatives, it is postulated that search will only continue up to the point at which the costs of further search exceed the possible benefits from discovery of better alternatives. For example, when buying a new car it is considered rational to check the prices asked by dealers within the surrounding geographical region, but it is not worthwhile to canvass all of the dealers in the entire state or in the nation.

Another unrealistic assumption of early rational models was that all relevant consequences of each alternative are known for certain. More recent models only assume that the decision maker can make a reasonably accurate estimate of the probability of each outcome, much as we are able to forecast the likelihood of rain reasonably well a day or two in advance.

Assumptions about preferences

Early rational-choice models, such as the "economic man" model, assumed that a decision maker only maximizes gain with respect to a single objective—for example, profit. These models were concerned only with objective rationality. Later models included multiple objectives and assumed that the decision maker is able to assign values to outcomes on a single, underlying scale of utility. These models were formulated to explain how decision makers make subjectively rational decisions when a variety of different outcomes must be considered for each alternative, and there are trade-offs among the alternatives. For example, in buying a car a consumer will usually consider more than one attribute. Price, reliability, safety, styling, comfort, interior space, gas mileage, and maintenance cost are some of the many factors that may be important to the consumer. Rational models assume that the person will select the car that is most desirable in terms of all relevant attributes, after taking into account the relative importance of the attributes. It is also assumed that preferences will be intransitive (i.e., logically ordered) across alternatives. For example, if the person prefers Brand A to Brand B, and prefers Brand B to Brand C, then he/she must also prefer Brand A to Brand C.

Phases of the decision process

Rational-choice models assume that the decision process consists of a fixed sequence of essential steps (Eilon, 1969). The decision process is short and mechanical in the economic man model, since the potential gains from each possible alternative are known for certain, and the decision maker need only select the alternative with the highest gain. In more complex rational models in which all possible alternatives are not initially apparent and outcomes are not certain, the decision process is longer and more complicated. The number of essential steps varies from theorist to theorist. Simon (1960) for example, proposed the following three decision phases:

1. Intelligence activity—recognizing problems and opportunities.
2. Design activity—finding or developing possible solutions.
3. Choice activity—evaluating alternatives and selecting the best one.

The following set of decision steps is typical of some of the more elaborate rational-choice models:

1. Recognition of the problem.
2. Diagnosis of the problem.
3. Identification of alternatives.
4. Evaluation of alternatives.
5. Selection of the best alternative.
6. Planning how to implement the decision.

One reason for combining evaluation and choice steps in some of the models is that choice of the best alternative is largely predetermined once the alternatives have been evaluated in a systematic manner. In subjectively rational models, the usual basis for evaluating an alternative is to determine its "subjective expected utility." This index is computed in the following manner for an alternative:

1. Each outcome is assigned a quantitative value based on its desirability.
2. Each outcome is assigned a probability indicating its likelihood of occurrence if the given alternative were to be chosen.
3. The desirability value of an outcome is multiplied by its probability.
4. The products are summed across all of the outcomes considered for the alternative.

This procedure is repeated for each alternative, then the decision maker selects the alternative having the highest subjective expected utility. An example can be found in Table 5–1.

LIMITS TO RATIONALITY

The economic man model is clearly unrealistic in its assumption of known alternatives, certain outcomes, and a single quantitative objective. The modified rational choice models make less restrictive assumptions about the information possessed by a decision maker, but these models make questionable assumptions about information acquisition, information processing, and judgmental processes. These assumptions are not consistent with research findings on the cognitive (i.e., mental) limitations of human decision makers (Hogarth, 1980). As noted by Simon (1957a, p. 198): "The capacity of the human mind for formulating and solving complex problems is very small compared with the size of the problems whose solution is required for objectively rational behavior in the real world—or even for a reasonable approximation to such objective rationality." In this section we will briefly review some

TABLE 5–1
Example of a decision with analysis of expected utility

Decision Situation:

A manufacturing company has to decide whether to continue producing the same product or replace it with a newer version. This company's major competitor is perceived to have a 40 percent probability of introducing a new product of its own in the coming year. The cost of bringing the new product into production is estimated at $1 million. Estimates of revenues and costs are based on projected sales and expected production costs for a given level of output. Should the company introduce the new product?

	Outcome 1	*Outcome 2*
Alternative	Competitor continues its old product.	Competitor introduces a new product.
Continue old product	Revenue: $4 million. Cost: $3 million.	Revenue: $1 million. Cost: $2 million.
Bring out new product	Revenue: $7 million. Cost: $5 million.	Revenue: $4 million. Cost: $4 million.
	Probability: .60.	Probability: .40.

Computation of Subjective Expected Utility (SEU):

Continue old product—

$$\begin{aligned} \text{SEU} &= .60\,(\$4{,}000{,}000 - \$3{,}000{,}000) + .40\,(\$1{,}000{,}000 - \$2{,}000{,}000) \\ &= \$600{,}000 - \$400{,}000 \\ &= \$200{,}000 \end{aligned}$$

Bring out new product—

$$\begin{aligned} \text{SEU} &= .60\,(\$7{,}000{,}000 - \$5{,}000{,}000) + .40\,(\$4{,}000{,}000 - \$4{,}000{,}000) \\ &= \$1{,}200{,}000 \end{aligned}$$

Decision: Bring out the new product. This alternative has the highest SEU.

Note: In this example it is assumed that the desirability of an outcome is equivalent to the profit (i.e., revenue minus cost) that it would provide.

of the many cognitive limitations that are contrary to the assumptions of rational choice.

Information acquisition and interpretation

Problem diagnosis and search for alternatives are seldom as thorough and systematic as the rational-choice models assume. Most decision makers initially possess only a small proportion of the relevant information, and they have only a limited time to gather additional information (Downs, 1966). Decision makers are often impatient, and they tend to terminate search too early. Moreover, people have a limited capacity to process and remember information, and they are very selective about what information they attend to. The ambiguity of much of the information makes interpretation necessary, and a decision maker's interpretation is influenced by his/her motives, attitudes, and expectations. People tend to be more receptive to information that is consistent with their attitudes and preferences; contrary information tends to be ignored or discounted. Since information is obtained sequentially, order effects may occur. That is, recently received information may be given greater importance than information received earlier, or vice versa, even though the information is equally valid. Other information characteristics also influence interpretation. For example, it is common for people to be influenced more by information derived from personal experience and observation than by abstract information, such as statistical reports, even though the abstract information may be more reliable and representative (Hogarth, 1980; Tversky & Kahneman, 1973).

Estimates of outcome probability are distorted by a variety of judgmental errors. Rational choice models assume that probability estimates are independent of outcome desirability, but research shows that this assumption is often violated (Hogarth, 1980). People tend to underestimate the likelihood of undesirable outcomes and overestimate the likelihood of desirable outcomes. Research also finds that people tend to be overly conservative when adjusting probability estimates to take into account new information (Edwards, 1968; Slovic, Fischoff, & Lichtenstein, 1977). Finally, the accuracy of outcome forecasts will be reduced as a result of careless inferences about trends and causal relationships where in fact there is only random variation and chance association. Attributional errors of this type are quite common.

Evaluation and choice

Rational-choice models assume that outcome desirability can be determined in advance by a decision maker. However, the more distant the outcome, the more difficult it is to anticipate satisfaction, due to changes in a person's aspirations and preferences over time. For outcomes that have not been previously experienced by a person, it will be especially difficult to anticipate how satisfying they will be.

Rational models assume that each outcome will be scaled on a common measure of desirability. In practice, people find this to be an extremely difficult, if not impossible, task (Miller & Starr, 1967). Although people take into account such abstract outcomes as self-respect, self-fulfillment, social approval, and fairness when making decisions, judgments are typically made without assigning precise, quantitative values.

In rational-choice models, all of the alternatives are compared simultaneously in order to determine which one maximizes objective (or subjective) gain. This assumption requires a degree of information processing that exceeds the capacity of the human brain (Simon & Newell, 1971). In order to simplify the decision, people typically narrow down the number of alternatives to be seriously compared and make this comparison using only a few key outcomes. Other outcomes are either disregarded or are used in the screening process to eliminate unacceptable alternatives. It is also a common practice to evaluate alternatives as they are discovered, rather than waiting until the search is completed. If the decision maker develops an early preference for a particular alternative, the evaluation of subsequent alternatives will tend to be biased in a way that will justify eventual selection of the "implicit favorite" (Soelberg, 1967).

SATISFICING MODELS

Because of their unrealistic assumptions about human information processing and judgment, rational-choice models fail to provide an accurate description of the way people typically make decisions. In contrast, satisficing models explicitly recognize the cognitive limitations of human decision makers. The central proposition of satisficing models is that the decision maker simplifies the decision and selects a satisfactory solution rather than the optimal one.

Bounded rationality

The best known of the satisficing models is the bounded-rationality model developed by Simon and his associates (March & Simon, 1958; Newell & Simon, 1972; Simon, 1957b). According to this model, search and evaluation of alternatives occurs in a sequential manner. As soon as an alternative is discovered, it is compared with a standard of minimum requirements for a satisfactory solution. The standard takes into account only one, or at most a few, objectives. Search is guided by rules ("heuristics") that reduce the number of alternatives that must be considered. One such heuristic is to begin the search by considering only solutions used successfully with previous problems of the same type. Another heuristic is to consider only alternatives that are likely to be acceptable to persons who must approve the decision (Cyert & March, 1963). Search often begins with solutions that are only minor variations of existing policies and procedures, or with solutions that are under the control of the decision maker and are easy to implement.

Thus satisficing greatly simplifies a decision problem and allows a person to make decisions without the need to consider numerous solutions, to estimate probabilities for uncertain outcomes, or to compare alternatives with each other. Differences between the bounded-rationality model and the rational-choice model for subjective rationality are summarized in Table 5–2.

The quality of decisions resulting from the satisficing procedure depends in large part on the decision maker's level of aspiration and the adequacy of his/her heuristics. The aspiration level represented by the standard of minimum requirements for a satisfactory solution may change over time. If the initial search yields alternatives that fall considerably short of the standard, the decision maker's aspirations will be lowered. As a result, it becomes easier to find a satisfactory solution, but it is less likely that an outstanding solution will be selected. In the same way, if the decision maker uses inappropriate heuristics, the search process is likely to yield inferior solutions. The only way that satisficing will result in a high quality solution is if the decision maker has high, stable aspirations and uses efficient, appropriate heuristics.

The bounded-rationality model appears to describe human decision making more accurately than do the rational-choice models. However, supporting evidence comes primarily from computer simulations of decision processes used to make particular kinds of recurrent decisions, such as investment decisions and hiring decisions (Cyert & March,

TABLE 5–2
Characteristics of rational-choice and bounded-rationality models

Characteristic	*Rational-choice model*	*Bounded-rationality model*
Number of alternatives generated	Many alternatives identified during a comprehensive search.	Sequential search generates only a narrow range of alternatives.
Number of criteria used to evaluate alternatives	Many criteria based on multiple objectives.	One or only a few criteria.
Evaluation of alternatives	Alternatives compared simultaneously or in pairs, sometimes repeatedly.	Each alternative evaluated only once as it comes to the attention of the decision maker.
Evaluation model	Compensatory model that considers trade-offs and criterion priority.	Multiple-hurdle model with minimal cutoff point on each criterion (if more than one criterion).
Solution resulting from the decision	Optimal solution (maximizes utility).	Satisfactory solution (meets aspiration level).

Source: Based on I. L. Janis and L. Mann, *Decision Making: A Psychological Analysis of Conflict, Choice, and Commitment* (New York: Free Press, 1977).

1963; Newell & Simon, 1972). Research on more complex, unique types of decisions suggests that the decision process is not as simple as proponents of the bounded-rationality model would have us believe.

Incrementalism

Another satisficing model, *disjointed incrementalism,* was formulated to describe decision making in government and bureaucratic organizations (Braybrooke & Lindblom, 1963; Lindblom, 1959). As in the bounded-rationality model, decision making is simplified by limited search and use of a satisficing criterion for choice. When a policy is found to be deficient in some respect, or pressure for a change in policy occurs, the policymakers will initially look for ways to make minor improvements and adjustments rather than make major changes in policy. Possible modifications are evaluated sequentially as policymakers become aware of them. The evaluation is in terms of whether the proposed modification in policy would provide a satisfactory solution to the immediate problem. No attempt is made to review the underlying objectives of the policy or to formulate an innovative, comprehensive plan for achieving these objectives.

When complex policy decisions must be made, decision objectives cannot be clearly specified, and multiple power groups have inconsistent objectives, incrementalism offers an approach both for simplifying the information-processing aspects of decision making and for gaining the support of powerful parties who are able to obstruct policy implementation. Nevertheless, incrementalism has some serious weaknesses. When the attention of a decision maker is focused on patching up existing policies or programs, alternative courses of action that would be more likely to lead to the attainment of underlying policy objectives are unlikely to be discovered or seriously considered. Moreover, a long sequence of disjointed adjustments and political accommodations may result in a major reorientation of a policy or program, without serious consideration of their implications and consequences. Sometimes the incremental changes are so gradual and drawn out that policymakers are slow to recognize the occurrence of a major change in policy. For example, the involvement of the United States in the Vietnam War gradually increased during a long series of small escalations, without careful consideration that these escalations were bringing about a shift in foreign policy from providing material assistance to conducting a major land war in Asia. Before they fully realized what had happened, policymakers became committed to a foreign policy that would result in domestic political unrest, dislocation of the economy, and erosion of the nation's image and credibility.

JANIS AND MANN DECISION MODEL

The satisficing and rational-choice models are both concerned with cognitive processes in decision making rather than emotional processes. In these models the decision maker is pictured as a cool, unemotional person who acts in a rational manner within the cognitive constraints of the decision situation. Janis and Mann (1977) argue that unemotional decision making is probably unattainable for any really important decisions. These decisions are often made in the presence of strong feelings of fear, anger, hatred, jealousy, love, or excitement. Even when it is possible to avoid making decisions in the heat of intense emotion, a person will rarely be able to achieve an entirely calm and detached state. Important decisions are highly stressful because they require a choice between competing but uncertain alternatives, each having the potential for economic loss, public embarrassment, and/or social disapproval by family and friends. This decisional conflict causes a person to feel anxious and apprehensive about the risks of intolerable losses and irreversible consequences. Based on evidence from social-psychological research on decision making, Janis and Mann proposed a conflict model of decision making to explain the causes and consequences of decision stress. Their model seeks to explain "whether a decision maker's search will be cursory or thorough, whether his predecisional deliberations will be biased or unbiased, and whether his adherence to a decision after he commits himself will be short-lived or persistent" (Janis & Mann, 1977, p. 79).

Five coping patterns

Janis and Mann propose five ways that a person can respond to information indicating existence of a problem:

1. *Unconflicted inertia* The person decides to continue the current policy or course of action without any change.
2. *Unconflicted change* The person realizes that some change is necessary but adopts a crude satisficing strategy. Only a few immediately obvious alternatives are considered, and the one that appears most promising is chosen without careful, systematic evaluation of possible consequences.
3. *Defensive avoidance* The person tries to avoid the necessity of choosing among imperfect alternatives by procrastinating or shifting responsibility for the decision to others. Alternatively, the person tries to reduce anxiety about making a choice by mentally "bolstering" one alternative to make it appear superior to the others. Bolstering involves selective perception of information about consequences, selective forgetting, biased interpretation of

events, wishful thinking, and misperception of signs that disaster is imminent.

4. *Hypervigilance* The person becomes highly agitated and frantically searches for a solution to the problem or, in the case of physical threat, for a way to escape. After superficially scanning the most obvious alternatives, the person will hastily select the one that seems most promising. Sometimes the person will vacillate between alternatives after becoming worried that the chosen alternative is inadequate.
5. *Vigilance* The person carries out a prolonged, thorough search for alternatives and a careful, systematic evaluation of consequences before making a decision. During decision making the person experiences a moderate amount of stress and anxiety.

Effectiveness of the five coping patterns

In terms of Janis and Mann's seven criteria for judging the quality of decision behavior, which were discussed earlier in this chapter, vigilance is the most effective coping pattern in situations where there is a serious problem requiring intensive problem solving. The moderate level of psychological stress associated with vigilance results in more effective problem solving than would either low stress or high stress. When there is low stress, as with unconflicted adherence and unconflicted change, a person is not aroused enough to seek out relevant information and to process it in a careful, systematic manner. When there is extremely high stress, as with hypervigilance, the person is motivated to search for a solution, but the stress interferes with information processing and judgment.

Unconflicted inertia is an effective coping pattern if the problem is not really serious, and there is no justification for spending time and effort to carry out intensive problem solving. However, if the decision maker underestimates the severity of the threat, he/she may be giving up the opportunity to take action to avoid the threat, and severe losses may be suffered if the threat actually materializes. A good example is Admiral Kimmel's failure to act on information suggesting a possible Japanese attack on Pearl Harbor in 1941.

Unconflicted change is an effective coping pattern only when there is an obvious good solution to a serious problem, making extensive search and evaluation unnecessary. For most serious problems a good solution is not readily apparent and this satisficing strategy will result in an inferior decision.

Defensive avoidance is usually not an effective coping pattern when it occurs alone because it results in inappropriate procrastination, buck passing, or inaccurate evaluation of alternatives. However, as a temporary coping pattern that occurs briefly during a decision process dominated by vigilance, defensive avoidance offers some benefits. Procrastination may be beneficial if an immediate response to a problem is not needed and the delay allows the person to recover from the emotional shock of discovering a serious problem. The delay helps reduce stress to a moderate level necessary for vigilant problem solving. Bolstering of a preferred alternative can be beneficial if it occurs after careful, systematic evaluation of alternatives is completed. Then it can give a person the confidence necessary to implement the decision and remain committed to it in the face of initially adverse feedback.

Hypervigilance is maladaptive in most situations because it disrupts problem solving and may result in a self-defeating panic reaction. The decision maker is likely to make snap judgments, to vacillate, or to be overly influenced by the way others are reacting to the threat. The only situation in which hypervigilance may be beneficial is one requiring drastic action to avoid disastrous losses and involving a person who is unlikely to take the necessary action in a less-aroused state. Even in this situation, hypervigilance will not be effective unless the required action can be recognized by the person in his/her state of extreme anxiety and excitement.

Antecedent conditions evoking each coping pattern

The Janis and Mann model postulates that a decision maker quickly analyzes the situation by considering the answer to four basic questions:

1. Are the risks serious if I don't change the current course of action?
2. Are the risks serious if I change to the most available alternative course of action?
3. Is it realistic to hope to find a better solution after more search and deliberation?
4. Is there sufficient time to conduct a careful search and evaluate additional information?

The answers to these questions determine what coping pattern is used. Unconflicted adherence to the present policy or course of action occurs if the person perceives no serious risks from such adherences. Unconflicted change occurs if the person perceives a serious risk in continuing the present policy or course of action and if there is an obvious alternative that does not entail any serious risk. Defensive avoidance occurs when the current policy and all of the immediately obvious alternatives appear to entail serious risks, yet the person has little hope of finding a better solution. Hypervigilance occurs if there is hope of finding a better solution, but there is little time left to search.

Vigilance is likely to occur only when the following four conditions exist:

1. The current policy or course of action entails great risks.
2. All of the immediately obvious alternatives entail great risks.
3. There is good reason to believe that a better solution exists.
4. There is sufficient time to conduct a systematic search for a better solution.

Janis and Mann recognize the possibility that a decision maker may shift from one coping pattern to another during the course of the decision process if the antecedent conditions change. For example, the reason bolstering sometimes occurs after vigilance is that the decision maker no longer perceives any possibility of finding a better solution, yet he/she still has doubts about the solution that has tentatively been selected. Sometimes hypervigilance replaces vigilance if, after a period of search, no promising alternatives have been discovered and the deadline for a decision is getting close. In this case the decision maker still believes in the existence of a better solution, but there is no longer adequate time to search for it. These and other possible shifts in coping patterns further complicate the decision process.

The decisional balance sheet

The evaluation of alternatives is portrayed by Janis and Mann in terms of a mental balance sheet containing entries for all of the favorable and unfavorable consequences anticipated by the decision maker. The balance sheet includes four categories of outcomes:

1. Utilitarian gains and losses for oneself.
2. Utilitarian gains and losses for significant others.
3. Self-approval or self-disapproval.
4. Approval or disapproval by significant others.

In contrast to rational-choice models, which emphasize utilitarian consequences, there is explicit consideration of social and psychological consequences, such as the disapproval of friends or co-workers and the personal feeling of shame and guilt about making a decision inconsistent with one's ideals and values. Janis and Mann postulate that all four types of consequences are consciously weighed whenever a person makes an important decision, although occasionally the person will not be aware of some of the relevant consequences unless they are brought to his/her attention.

The model postulates that decisions are made on the basis of the likely gains and losses for each alternative but, as yet, no quantitative methods have been developed for assessing and combining the diverse consequences. Thus the balance sheet is not very useful for predicting which alternative will be selected. It is more useful for gaining insight into the way a person reacts to negative feedback received after a decision has been made. Janis and Mann postulate that the more errors a person makes in his/her mental balance sheet (e.g., overlooking likely costs or losses, exaggerating expected benefits), the more vulnerable the person will be to postdecisional regret when setbacks occur and negative consequences are experienced. One common error of omission is failure to give more than fleeting attention to self-approval considerations. For example, in deciding whether to accept a job providing attractive utilitarian benefits (e.g., high salary), the person may overlook the possibility that the job will require him/her to do things that are incompatible with his/her values and moral code. Serious errors in the mental balance sheet are less likely to be made if the dominant pattern of decision making is vigilance, rather than defensive avoidance, hypervigilance, or unconflicted change.

ORGANIZATIONAL DECISION MAKING

Until this point, the focus of the chapter has been on the way an individual makes decisions. Now the focus will shift to organizational decisions, which usually involve more than a single person. Decisions made at lower levels in an organization are usually reviewed and modified by higher-level managers. Some decisions are initially made by a group rather than by an individual. Different persons are likely to be involved at different stages of the decision process. For example, the person who identifies the need for a decision may refer the matter to someone who has the authority to take necessary action. It is common practice for a manager to consult with peers, subordinates, and superiors during the earlier stages of the decision process (e.g., problem diagnosis, search, and evaluation) before making a final choice by himself or herself. Sometimes a manager will make a decision, then delegate major responsibility for planning the details of implementation to subordinates. The dynamics of the decision process become more complicated when many parties are involved in making a decision, particularly when there are disagreements among parties about objectives and priorities. No theory of organizational decision making is complete unless it is able to explain how decisions are affected by political processes and conflicts among parties with divergent interests.

Optimizing

In the earliest days of decision theory, the decisions of business firms were assumed to be made in accordance with the rational-choice model. For example, it was believed that a firm selected the level of production that would maximize its profit. Since rational-choice models describe decision making in terms of the cognitive processes of a single individual, the extension of the model to organizational decision making required the additional assumption that authority to make major decisions is centralized in a dominant individual or in an executive group who agree about objectives and priorities. The assumption of a single, all-powerful decision maker appears reasonable for many small, owner-managed businesses but not for larger organizations. The assumption of an executive group with uniform objectives also appears unrealistic for most large organizations. Thus rational-choice models are even less useful for describing organizational decisions than for describing individual decisions. Empirical evidence from research on organizational decisions reveals a decision process very different from the one pictured in rational-choice models (Carter, 1971; Cyert, Simon, & Trow, 1956; Duffy & Taylor, 1962; Gore, 1956; Heller, Drenth, Koopman, & Rus, 1983; Witte, 1972).

Satisficing

Satisficing models have been used to describe organizational decision making as well as individual decision making (Simon, 1979). Indeed, incrementalism was originally formulated to describe how policy decisions are made in pluralistic organizations, and it was subsequently used to describe how budgetary decisions are made in government (Davis, Dempster, & Wildavsky, 1966; Wildavsky, 1979). However, satisficing models have only limited explanatory power when applied to a situation in which conflict exists among organizational parties. The models include an assumption that conflict can be avoided or resolved by making minor modifications in policy and by relying heavily on tradition and precedent in allocating resources to competing subunits. Satisficing models cannot explain abrupt policy shifts and major budget reallocations.

Etzioni (1967) has suggested that a mix of rational-choice and incrementalism models is needed to explain the full range of organizational decisions. He proposed the use of a quasi-optimizing model to explain major policy shifts during crisis periods and incrementalism for explaining minor policy revisions and decisions about policy implementation during noncrisis periods. Unfortunately, this mix model is still unable to explain the political aspects of the decision process involving conflict among parties with incompatible interests.

Political decision models

Some theorists (Cyert & March, 1963; Pfeffer, 1981) have formulated political models that describe how organizational decisions are

TABLE 5–3
Characteristics of four organizational decision theories

Characteristic of model	*Rational choice*	*Satisficing*	*Political models*	*Organized anarchy*
Decision makers and goals	One decision maker, or several with uniform objectives	Multiple parties with some goal diversity	Multiple parties with very diverse goals	Multiple parties with very diverse goals
Power and control	Centralized	Moderately centralized	Decentralized, with shifting coalitions	Decentralized among subunits and individuals
Basis for making decisions	Maximize utility	Incremental changes that satisfy each party	Bargaining and power politics	Convergence of persons, problems, and solutions
Decision process	Very orderly and rational	Orderly due to emphasis on precedent and rules	Disorderly due to conflicts of interest	Very disorderly due to random processes

Source: Based on J. Pfeffer, *Power in Organizations* (Marshfield, Mass.: Pitman, 1981).

Mintzberg and his colleagues distinguish three kinds of decisions ranging along a continuum of problem severity: crises, problems, and opportunities. They found that serious crises were recognized more quickly and easily than were opportunities or mild problems Crisis decisions were usually triggered by a single, sudden stimulus, such as a bankruptcy or fire. Problem decisions were usually evoked only after multiple stimuli accumulated, sometimes over a period of months or years. A problem was more likely to evoke a decision when solutions were readily available. Opportunity decisions were usually evoked by a single idea, but the idea remained dormant until it became relevant to a particular problem and the decision maker was in a position to act on it. Recognition also depended on a decision maker's workload. Crises received priority attention, and a manager preoccupied with crises was less likely to recognize mild problems or look for opportunities.

Once need for a decision was recognized, the decision maker carried out a diagnostic routine to discover the cause and nature of the problem. Existing information channels were tapped and new ones opened. In some cases, consultants or an investigating committee were asked to help define and clarify the issues. The duration and formality of diagnosis were found to be dependent on the type of decision. Formal diagnosis occurred for most of the mild problems, but for only about half of the opportunity decisions. Formal diagnosis rarely occurred for crisis decisions, probably because of the time pressure for a quick decision to resolve the crisis.

Development

In most of the decisions studied, more time and effort was devoted to development than to identification or selection phases of decision making. Some decision makers searched for ready-made solutions, but few decisions actually resulted in the selection of a ready-made solution. Most of the decisions included design activity involving either the modification of existing alternatives to make them more acceptable or the development of custom-made solutions. Design of custom-made solutions was typically more complicated and time-consuming than modification of existing solutions. In the decisions in which initial search was followed by modification, it was fairly common for the organization to develop two solutions to be compared with each other. In contrast, for most decisions involving custom-made solutions, only one such solution was fully developed.

Selection

Selection is typically a multistage process involving a successive narrowing of alternatives and a progressively more intensive evaluation of surviving alternatives. Mintzberg and his colleagues found that when the number of available alternatives was large, screening occurred to quickly eliminate infeasible alternatives. The final evaluation-choice routine was more intensive, and it could take different forms. In some cases it occurred as the mental judgment of a single individual, in other cases as the result of discussion and bargaining among a group of decision makers. A formal, systematic analysis and evaluation of likely consequences occurred only rarely, and this kind of analytical process was always followed by individual judgment or group bargaining to make the final choice. For most decisions, evaluation and choice occurred together rather than as distinct, sequential steps. In every decision studied, the weightings of criterion dimensions were determined implicitly in the process of making a choice, rather than being determined explicitly in advance.

Authorization is a necessary part of the decision process whenever the decision maker lacks the authority to commit the organization to a course of action. In some cases, authorization also involves getting the approval of outsiders who have the power to block implementation of the decision (e.g., regulatory agencies, a parent company, labor unions, environmental groups). For decisions made by lower- and middle-level managers in an organization, authorization is a sequential process that is repeated at successively higher levels of authority. In the study by Mintzberg and his colleagues, the only decisions not requiring authorization were ones made initially by top management or by the manager of a highly autonomous subunit acting within his/her limits of discretion. The authorization process usually occurs only after choice of a completed solution, but occasionally a decision maker must get authorization to proceed with the development and selection phases of the decision process. For example, an organizational subunit with a position opening may not be able to initiate a search for candidates until it receives budgetary authorization for the position from top management. Efforts to obtain authorization for a decision are not always successful. When a decision is not approved, it may be abandoned, but more often it is recycled back to the development phase for modification to make it more acceptable. This kind of recycling was observed for many of the decisions studied by Mintzberg and his colleagues.

Political activity

Political activity can occur during any of the three decision phases. In a few of the decisions, political activity occurred early in the process as participants argued about the existence of a problem or the nature of the problem. In most cases, political activity (e.g., bargaining, coalition formation, legal action, reorganization to undermine opponents) occurred during the development and selection phases. Political considerations often caused delays or speedups in the decision process. Some delays occurred in order to wait for resistance to subside, and some speedups occurred in order to surprise opponents and get the decision made before they could mobilize to block it.

AIDS FOR IMPROVING DECISION MAKING

Many different kinds of decision aids have been devised to improve the quality of decisions made by individuals or groups. Some aids help a person interpret ambiguous information and determine what information is relevant. Some aids help a person to understand the causes and critical elements of a problem. Some aids help generate ideas about possible solutions to a problem. Some aids help in predicting the likely consequences of a particular decision. Some aids make it easier to simultaneously compare alternatives according to multiple criteria. Finally, some aids will actually make a decision for the person based on the person's stated preferences and expectations (Bass, 1983; MacCrimmon & Taylor, 1976).

In this last section of the chapter, we will briefly describe several of the most useful types of decision aids. Some additional decision aids that are primarily relevant for group decisions are described in Chapter 6. For a more comprehensive and detailed review of decision aids, the reader is referred to other books, such as Bass (1983); Brown, Kahr, and Peterson (1974); Huber (1980); and Keeney and Raiffa (1976).

Structured association techniques

One approach for increasing the number of innovative solutions to a problem is to encourage the decision maker to systematically associate the many elements of a complex problem. In a procedure called *morphology* (Zwicky, 1969) the key dimensions and elements of a problem are first identified, then all possible pairs or combinations of several elements are considered. Although most combinations will be meaningless, a few combinations may provide insights into a novel solution that might otherwise have been overlooked. A simple example of the technique is provided by a construction firm that is searching for ways to build low-cost housing. Two of the key dimensions of the problem are type of dwelling and type of construction material. The various types of dwelling (e.g., duplex, rowhouse, high-rise apartment, single-family house) are listed as the column headings of a matrix, and the construction materials (e.g., brick, wood, stucco, aluminum, cement blocks, adobe) are listed as the row headings. The feasibility of each combination of method and material (i.e., the matrix cells) is then considered (Chung & Megginson, 1981).

Another approach for structuring solution generation is to broaden the range of possible changes considered for an object, product, or procedure involved in a problem. The decision maker uses a checklist like the one shown in Table 5–4 to systematically consider all of the possible changes in the hope of finding good solutions that might not otherwise have been considered (Osborn, 1957).

TABLE 5–4
Checklist of possible changes

- *Adapt*
  - What else is like this?
  - What other ideas does this suggest?
  - What could I copy?
- *Modify*
  - Can I change the meaning, shape, size, color, motion, form, sound of it?
  - Are there any other kinds of possible changes?
- *Magnify*
  - What can be added to it?
  - More time?
  - Greater frequency?
  - Longer?
  - Higher?
  - Stronger?
  - Thicker?
  - Extra value?
  - More ingredients?
  - Duplicate?
  - Multiply?
  - Exaggerate?
- *Minify*
  - What to subtract?
  - Smaller?
  - Condensed?
  - Lower?
  - Shorter?
  - Lighter?
  - Less time?
  - Streamlined?
  - Understated?
  - Split up?
  - Omit?
- *Rearrange*
  - Interchange components?
  - Other pattern?
  - Other sequence?
  - Change pace?
  - Change schedule?
  - Change layout?
- *Reverse*
  - Transpose positive and negative?
  - Turn it backward?
  - Turn it upside down?
  - Turn it inside out?
  - Reverse roles?
- *Substitute*
  - Who else instead?
  - What else instead?
  - Other ingredient?
  - Other material?
  - Other place?
  - Other process?
  - Other persons?
  - Other source?
- *Combine*
  - Combine units?
  - Combine purposes?
  - Combine materials?
  - Combine ingredients?
  - Combine locations?
  - Combine processes?
  - Combine appeals?
  - Use a blend?
  - Use an ensemble?
  - Use an assortment?
  - Use an alloy?

Source: Based on A. F. Osborn, *Applied Imagination* (New York: Charles Scribner's Sons, 1957).

Delphi forecasting technique

The Delphi technique, is a method for improving forecasting by a panel of experts who make individual forecasts without meeting face-to-face. Each expert is asked to make an anonymous prediction and indicate the reasons for this prediction. The responses are summarized, and each expert is informed about the responses of the other panelists. Based on this feedback, each expert reconsiders the question and either makes new predictions or repeats his/her original predictions. The process may be repeated two or more times. The rationale for independent, anonymous predictions is that these predictions will be less biased if panelists are unconcerned about protecting their reputations and are able to learn from each other without becoming defensive about their initial opinions. The procedure allows exchange of ideas and information without the need to get large numbers of experts together for face-to-face meetings. A number of organizations have claimed success in using the Delphi technique (Delbecq, Van de Ven, & Gustafson, 1975). The major limitation of the method is that it requires a long time interval (i.e., several weeks per round) to complete and is therefore not feasible when a rapid decision is needed.

Outcome psychodrama

This decision aid was developed to help people become more aware of emotionally charged outcomes that are likely to have an important influence on eventual satisfaction with a decision (Janis & Mann, 1977). The decision maker is asked to project himself or herself into the future and imagine what has happened as a result of choosing the most attractive alternative. The decision maker creates an imaginary scenario of events and describes how he/she would feel about them. The decision maker may be asked to create two scenarios, one assuming that things go well, and one assuming that things turn out badly. The procedure can be repeated for other key alternatives being considered, although when used for more than two alternatives, it is best to enact only the unfavorable scenarios to save time. Janis and Mann report that outcome psychodrama helps people develop a more realistic "balance sheet" of costs and benefits for each alternative. Careful consideration of potential distressing losses should result in better decisions.

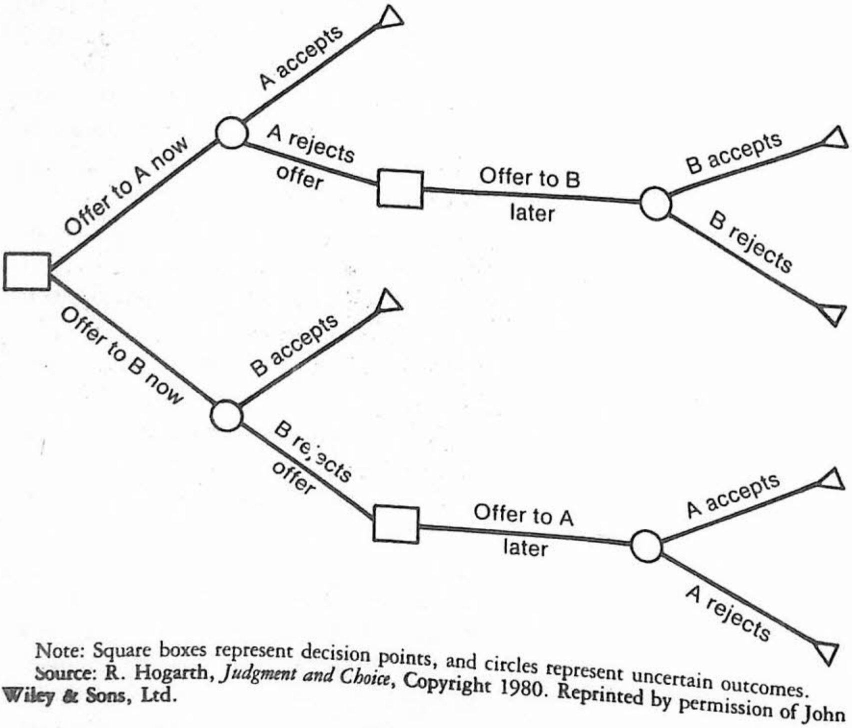
Decision trees

A decision tree is a graphical model depicting a sequence of related choices and possible outcomes (Huber, 1980). This decision aid helps a person to structure and understand a decision problem involving a sequence of related events. For example, suppose there are two candidates for a job opening in a company. One candidate is more qualified than the other, but the best candidate has other job offers and is less likely to accept an offer from the company. Once an offer is made it takes a few weeks to get a reply from the candidate, and in the meantime, the remaining candidate may accept a position elsewhere. The problem is who should be offered the position first. The decision problem can be depicted by the decision tree shown in Figure 5–1. After estimating the probability and desirability of each outcome branch in the decision tree, the two primary options can be compared in terms of their subjective expected utility to determine which option is better. The procedures for doing this are explained in more detail by Huber (1980).

Mathematical models

A model is a simplified representation of reality that is used to explain the behavior of some aspect of reality. Mathematical models depict the relationships among selected variables in precise, quantitative terms. When causal relationships and prevailing conditions are well understood and the variables are susceptible to accurate measurement, it is feasible to develop a mathematical model to stimulate real-

FIGURE 5–1
Example of a decision tree



Note: Square boxes represent decision points, and circles represent uncertain outcomes.
Source: R. Hogarth, *Judgment and Choice*, Copyright 1980. Reprinted by permission of John Wiley & Sons, Ltd.

world conditions. This kind of model can be used at any stage of the decision process (Harrison, 1981). A mathematical model may be used to identify the likely cause of a problem, to identify alternative solutions, to predict likely outcomes, to make a comparative evaluation of solutions, and to monitor progress and detect deviations from plans after the decision is made and implemented. Models help a person make more systematic and orderly decisions based on analysis of larger amounts of the available information. Decision quality is likely to be improved as long as the model is realistic and the information fed into it is accurate. Mathematical models have been used successfully to schedule projects, manage inventories, balance production lines, plan production schedules, determine the best location for warehouses, determine the best distribution routes, determine the optimal number of checkout counters in retail stores, and for many other types of decisions (Radford, 1981).

SUMMARY

As we have seen in this chapter, a bewildering array of theories has been proposed to describe individual and organizational decision making. Each model appears applicable to some types of decisions, but no single model is able to explain how all types of decisions are made in all types of organizations.

Rational-choice models specify how decisions should be made in order to maximize objective or subjective gains. These models make a number of unrealistic assumptions about human information processing and judgment. Cognitive limitations prevent decision makers from carrying out the comprehensive and elaborate search and evaluation processes specified by rational-choice models, although for some types of decisions it is possible to approximate these processes with the aid of quantitative decision techniques and computers.

Satisficing models attempt to describe how humans usually make decisions in the face of cognitive limitations and social constraints on choice. Simon's bounded-rationality model portrays decision making as a sequential process of search guided by rules to limit the number of alternatives that must be considered. A decision is made as soon as a satisfactory solution is discovered. Lindblom's disjointed incrementalism is a satisficing model dealing specifically with policy decisions and budgetary decisions in government and other types of pluralistic organizations.

Janis and Mann's conflict model attempts to explain the causes and consequences of decision stress. The model specifies the conditions under which a decision maker will utilize various coping patterns and analyzes the relative effectiveness of these coping patterns. The decision process takes different forms depending on what coping pattern is used. The process of weighing alternatives is described in terms of a mental balance sheet. The more carefully and objectively a person considers the potential costs before making a decision, the less likely the person is to experience postdecisional regret if any of these costs subsequently materializes.

Rational-choice and satisficing models have been used to describe organizational decisions as well as individual decisions, but neither model deals adequately with the political processes in organizational decision making. The political models formulated by Cyert and March, and by Pfeffer, attempt to fill this theoretical gap. An alternative view of organizational decision making is provided by the organized anarchy models, which emphasize that haphazard, disorderly nature of the process when decisions are made in organizations with ambiguous goals, poorly understood methods, and fluid participation.

Some evidence of satisficing, political activity, and random convergence of problems and solutions was found in the research study by Mintzberg and his colleagues on decision making in a variety of organizations. The study provides some insights into the way decision processes are evoked, solutions are found or designed, and choices are made and authorized.

A variety of techniques have been devised to assist individuals and groups in making more orderly, systematic decision. A brief description was provided for the following decision aids: structured association techniques, Delphi forecasting technique, outcome psychodrama, decision trees, and mathematical models.

REVIEW AND DISCUSSION QUESTIONS

1. Define and explain each of the following terms: *objective rationality, subjective rationality, expected utility, satisficing, incrementalism, heuristics, decisional balance sheet, Delphi technique, outcome psychodrama, decision tree, mathematical model, vigilance, hypervigilance, defensive avoidance, bolstering.*
2. How can the rationality of a decision be judged? Is it possible to make a completely rational decision?
3. What assumptions do rational-choice models make about human information processing and preferences? How realistic are these assumptions?
4. How is individual decision making depicted in the bounded-rationality model? How does this differ from the way decision making is depicted by the rational-choice model?
5. Describe the five coping patterns in the Janis and Mann model, and discuss their relative effectiveness in decision making.
6. According to the political decision models, how are organizational decisions made?

7. How are organizational decisions made according to the organized-anarchy models?
8. What did the research by Mintzberg show about the way organizational decisions are made?
9. Describe some decision aids that can be used to improve decision making.

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6

Group processes in organizations

Individual behavior in organizations is profoundly influenced by groups. In this chapter we will attempt to provide a general understanding of group processes. The reason informal groups emerge and coexist with formal groups will be examined. The ways that groups can influence their members and the consequences for group performance will be described. We will also examine decision making in groups. Finally, we will review some practical implications for improving the effectiveness of groups.

THE NATURE OF GROUPS IN ORGANIZATIONS

A group is a collection of people who interact with each other regularly over a period of time and perceive themselves to be mutually dependent with respect to the attainment of one or more common goals. A collection of strangers on a bus or in an elevator is not a group. However, if a collection of strangers were stranded for several days in a situation where they had to cooperate in order to survive and be rescued, the properties of a group would rapidly develop. Once the existence of a common goal was recognized, procedures for attaining the goal would be formulated, specialized task roles for each person would be determined, norms would develop to regulate behavior, and one or more leaders would emerge.

Formal and informal groups

Formal groups exist in all organizations. A formal group is a legitimate subunit of the organization that has been established by the organization's charter or by managerial decree. Work crews, committees, small departments, quality circles and project teams are all examples of formal groups. In formal groups, the goals, rules, membership, and selection of a leader are usually specified by the parent organization. Although a formal group must operate within these organizational constraints, the "formal leader" is usually allowed considerable discretion over task procedures, job assignments, and the allocation of organizational rewards.

Informal groups can also be found in all organizations. These groups develop apart from the officially prescribed plan of the organization, and they exist as relatively autonomous subcultures within the organization. There are informal groups composed of managers as well as informal groups composed of nonsupervisory employees (Burns, 1955). An informal group usually forms when people work in close proximity to each other or interact frequently in their jobs. Consequently, the membership of an informal group often coincides with the membership of a formal work group. However, informal groups tend to be quite small, and in a large formal group, there are likely to be several small informal "cliques." These cliques are usually composed of persons who have the same type of job or have similar interests and backgrounds. Informal groups may also develop among employees who are not members of the same formal group if they work in the same location or interact frequently during lunch or after work.

The importance of informal groups

Informal groups satisfy a variety of employee needs. Membership in an informal group provides an opportunity to satisfy social needs, such as friendship, affection, and nurturance. Security needs are served when informal groups restrain harmful competition among employees and help them to join together in resisting unpopular changes or pressure for increased performance. Informal groups also facilitate cooperation among employees in dealing with problems in their jobs. For example, employees may agree to provide help to anyone in their group who gets behind in his/her work or needs to leave early.

One especially important function of informal groups is the regulation of social and task behavior. Although some norms for social conduct are provided by the formal organization and by the external culture, there is a need for elaboration of these norms within the job situation. Informal groups provide guidelines about what behavior is acceptable, such as the "right" way to dress, the "in" slang words and expressions. Informal groups also provide elaboration of formal task rules and procedures when these are too general or ambiguous to provide adequate guidance for employees. The informal procedures and norms that develop are not necessarily compatible with the rules and goals of the formal organization.

The importance of informal groups as a source of influence over employee behavior and performance was demonstrated in the 1930s by the Hawthorne studies (Roethlisberger & Dickson, 1939). In one of these studies ("Bank Wiring Room"), a group of men who were wiring and soldering telephone panels was observed over a period of several months. These employees had informal norms about the acceptable production rate and other aspects of behavior on the job. The proper rate of production according to the informal norm was two panels per day, and the employees paced themselves to finish the second panel just as the work period ended. Anyone who tried to deviate from group norms received ridicule or minor physical punishment from other group members. The consequences of the informal group for the organization were falsified reports and a serious restriction of production, despite the existence of a pay incentive plan.

Social influence in groups

It is obvious from the preceding example that groups can have a substantial influence over their members. In order to gain a better understanding of this influence, it is useful to distinguish between influence over a person's public behavior and influence over a person's private attitudes and beliefs.

Groups can influence member behavior directly by means of social pressure. Behavior that conforms to group norms is referred to as "compliance," and it may or may not be discrepant with the person's private attitudes. It is difficult to tell whether a group has changed a person's private attitudes and behavior. A study by Coch and French (1948) provides a good example of compliance without private acceptance of the group norm. A new woman began working with a group of clothes pressers who were each working at approximately the same rate. As she learned the job, her production increased, and she soon exceeded the production norm set by the group. The other workers began to exert social pressure, and her performance dropped back to the group norm. After a couple of weeks, the group was broken up, and the workers were sent to separate locations. At this time the woman's production abruptly doubled, and it stayed at this higher level during the remainder of the study.

The reason for compliance with group norms is usually fear of punishment or rejection by the group. As we saw in the Bank Wiring Room study, groups have a variety of tactics for ensuring compliance. These tactics include: teasing, sarcasm, ridicule, threats, violence, destruction of personal property, and the silent treatment. It is an unusual person who is able to resist complying in the face of this social pressure. Studies of employees who produce more than the group norm (rate busters) reveal that the few people who do not conform are unconcerned about acceptance by the group. Instead, they are motivated strongly by their internal values or by the desire to earn more incentive pay.

In addition to using direct social pressure, groups can influence a member's behavior through the process of role modeling (Hackman, 1975). New members and low-status members often imitate the behavior of attractive, high-status members. This imitation occurs even when there is no conscious attempt by the role model to influence the imitator. However, the behavior is more likely to be repeated if it is rewarded with a verbal or nonverbal expression of approval by the role model or by other group members.

Groups can also influence a person's attitudes and beliefs. When members of a group are together frequently and they depend upon each other to help interpret their common experiences, they tend to develop the same attitudes and beliefs. Moreover, when a person belongs to a group and strongly identifies with it, the individual tends to accept the norms and values of this "reference group." A good example of the way a person's attitudes are influenced by the job role and reference group can be found in a study by Lieberman (1956). He found that the attitudes of workers who were promoted to foreman gradually became more promanagement, whereas the attitudes of workers who became union stewards gradually became more prounion. When a recession caused some of the foremen to become regular workers again, there was a parallel reversal in attitudes (i.e., they became less promanagement). An attitude reversal was also found among union stewards who were not reelected to another term.

The extent to which a person depends on the group to help interpret reality varies from individual to individual and from one situation to another. Three determining factors are environmental complexity, group complexity, and individual self-confidence (Hackman, 1975). Dependence is greater for persons who feel poorly qualified to interpret events for themselves and for complex, obscure events about which the group is perceived to be an informed, trustworthy source of knowledge.

By influencing member attitudes and beliefs, groups indirectly influence member behavior since a person's behavior tends to be consistent with his/her attitudes unless there is considerable social pressure to act differently. Thus groups have two potential sources of influence over member behavior: (1) direct influence from social pressure and role modeling and (2) indirect influence from attitude induction.

Group cohesiveness and performance

A major determinant of the amount of influence a group has over its members is group cohesiveness. The term *cohesiveness* refers to the solidarity among group members and their attraction toward membership in the group. In a very cohesive group there is a high degree of mutual friendship and esteem, and the group provides satisfaction of its members' social needs. Since the members are very concerned about group acceptance, cohesive groups are able to exert greater social pressure for member compliance than are noncohesive groups. Moreover, a cohesive group is more likely to serve as a reference group for its members.

Even though cohesive groups are more likely to develop performance norms and enforce compliance with them, the level of these norms depends to a large extent on the relationship between the group and the parent organization. In a study of 228 industrial work groups, Seashore (1954) found that the performance of noncohesive groups was *lower* than the performance of those cohesive groups that perceived management to be supportive and dependable. Conversely, the performance of noncohesive groups was *higher* than the performance of those cohesive groups whose members felt insecure in their relation to the company. Therefore it is obvious that cohesiveness determines the amount, but not the direction, of group influence. Cohesive groups can be equally effective in either encouraging or restricting member performance.

Cohesiveness affects group performance in other ways besides increasing compliance with performance norms. When the task roles in a group are highly interdependent, close cooperation and coordination are necessary for effective performance. Cooperation and teamwork are more likely to occur in cohesive groups than in noncohesive groups. Furthermore, there is likely to be less absenteeism and turnover in cohesive groups (Shaw, 1976).

DETERMINANTS OF COHESIVENESS

Group cohesiveness is affected by a number of group characteristics, including group size, member homogeneity, stability of membership, goal interdependence, external threat, difficulty of entry, and status consensus (Shaw, 1976). The implications of each group characteristic for cohesiveness will be examined more closely.

Group size

Small groups are likely to be more cohesive than large groups (Thomas & Fink, 1963). As a group grows larger, it becomes more difficult for each member to interact with the other members. People usually prefer to limit most of their interactions to a relatively small circle of friends and colleagues, and in large groups (more than 10 persons) cliques are likely to develop. As the cliques compete for status and influence in the larger group, the level of overall cohesiveness is reduced.

Member homogeneity

One of the most important determinants of attraction between people is similarity of attitudes and values. Groups composed of persons with the same socioeconomic, religious, and cultural background are more likely to be cohesive than are groups with very diverse membership (Lott & Lott, 1965). In homogeneous groups, members feel comfortable with each other, and there is consensual validation for their shared beliefs and values.

Membership stability

A group that has the same membership over a long period of time tends to be more cohesive than one with frequent changes in membership. The infusion of new members precipitates status struggles and creates confusion about friendship relations and behavior norms. In groups without much change in membership, norms and relationships stabilize and members feel more at ease with each other. If there are sources of mutual attraction (e.g., shared values and interests), a stable membership provides opportunity for development of close friendships.

Goal interdependence

A group is more likely to be cohesive if members are dependent upon each other for attainment of shared goals than if members individually pursue their own separate goals, or worse, compete with each other for scarce resources. As group members work together in a cooperative effort, they are drawn closer together and develop more favorable attitudes toward each other. The feeling of group identification is especially strong when the group is successful and members derive tangible benefits from belonging to it (Sherif, 1966).

External threat

When a group is threatened by an outside enemy or competitor, cohesiveness tends to increase as members "rally around the flag." An external threat increases the goal interdependence of members, and they are likely to put aside their differences and work together to defeat the enemy or opponent. As they strive to present a united front to the enemy, members tend to feel a stronger identification with the group (Janis, 1963; Sherif, 1966). Sometimes the threat is a despised formal leader who unifies the group in its opposition to him or her.

Difficulty of entry

A group that is very exclusive and selective tends to be more cohesive than one that is less attractive and easy to join. Members derive prestige from belonging to an exclusive group and will tend to identify with the group. Cohesiveness is enhanced when people who desire to join the group must undergo a long and difficult process of application and review. When recruits must endure a severe initiation ceremony or make other sacrifices to join a group, they will tend to rationalize the costs of obtaining membership by developing a stronger attraction to the group.

Status consensus

A group is not likely to be highly cohesive if there is a lack of "status consensus." A person's status is the amount of respect and prestige he or she is accorded by other group members. Status can be based on a variety of things, such as seniority, age, sex, skill, education, and prior accomplishments. There is status consensus when group members agree on the relative status of each person in the group. When members disagree about the status hierarchy, they will be frustrated and resentful (see review by Heslin & Dunphy, 1964). There is likely to be a status struggle where each person strives to protect or improve his or her position in the pecking order.

The status consensus will be disrupted whenever status symbols are allocated in a manner that is highly discrepant with the existing status hierarchy. For example, if the most important task, the largest office, or the highest pay grade is given to a person who has low staus, there is bound to be resentment by some other group members. Status discrepancies are also caused by characteristics of the work flow that result in a low-status person directing or initiating action for a higher-status person. A case study by Whyte (1948) nicely illustrates this kind of status problem. In the restaurant studied by Whyte, order runners communicated customer orders from the waitresses to the cooks and carried the completed food to the waitresses. The high-status cooks resented being "told" what dishes to prepare and which orders to rush by the low-status order runners. Frequent arguments resulted, disrupting performance.

Building cohesive groups

There are several approaches that can be used to increase group cohesiveness. One approach is to allow employees to select their own teammates. Forming groups on the basis of mutual choices greatly reduces the possibility that members will be incompatible with each other. A study by Van Zelst (1952) demonstrated that this approach can improve the performance of groups in which cohesiveness and cooperation are important. Two-man and four-man construction crews were reassembled on the basis of the employees mutual choices. Productivity during the preceding 9 months was compared with productivity during the first 11 months after the change. There was a substantial increase in productivity and a decrease in turnover. One of the workers made the following comment about the change: "Seems as though everything flows a lot smoother. It makes you feel more comfortable working, and I don't waste any time bickering about who's going to do what and how. We just seem to go ahead and do it. The work's a lot more interesting when you've got your buddy working with you. You certainly like it a lot better, anyway." (Van Zelst, 1952, p. 183).

A variation of this approach is to form groups composed of persons who appear to have the same attitudes and cultural background. Once the groups are formed, cohesiveness can be nurtured by maintaining stability of membership. Of course, it is often infeasible to make assignments to groups on the basis of compatibility alone. In fact, in some cases, forming homogeneous groups would require racial or ethnic considerations in making job assignments, and these assignments would be in violation of antidiscrimination laws (see Chapter 15).

In forming task groups, it is important to consider the impact of group size as well as member composition. As the number of persons in a group increases beyond a certain range (8 to 10), the possibility of maintaining close, informal relationships rapidly diminishes. Therefore, when it is feasible, cohesiveness can be improved by restricting the size of work groups and breaking up large work groups into small ones.

One major obstacle to development of cohesiveness in a work group is the lack of opportunity for pleasant interaction among group members. In some jobs communication among employees is inhibited by physical separation or noisy equipment. Walker and Guest (1952) found that this was often the case on automobile assembly lines. The development of friendships among workers can be facilitated by eliminating such barriers to communication when feasible. Conversation among employees should not be discouraged unless it clearly interferes with performance. If it is not feasible for employees to interact regularly as they work, other interaction opportunities, such as periodic meetings and social events, can usually be arranged.

It is important to remember that increased opportunity for interaction will not necessarily increase cohesiveness. There must be a basic compatibility of group members and the absence of conditions creating serious conflicts of interest within the group (such as a reward system based on competition) or the allocation of status symbols in a manner that upsets the status consensus. The more sources of conflict that exist, the more effort will be necessary to preserve cohesiveness. Specific approaches for managing conflict will be discussed in Chapter 8.

BEHAVIOR IN GROUPS

We have seen that the behavior of group members is strongly influenced by group norms and social pressure. Now it is time to take a closer look at behavior patterns in groups. The classification and analysis of behavior has been a major subject of small group research in laboratory settings since interest in group dynamics blossomed in the early 1950s. Several category systems have been developed for use by observers in classifying the verbal and nonverbal behavior of group members (see review by Weick, 1968). For example, in the best-known category system, called Interaction Process Analysis (Bales, 1950), each gesture, comment, or other action is classified in sequence into one of 12 categories, and the identity of the actor and other parties to the interaction is recorded.

Task-oriented behavior

Research on behavior in groups has identified two categories of behavior that are essential for the success and continuity of any group. The first category, "task-oriented behavior," includes behavior that aids the group in selecting goals and making progress in attaining them. The specific types of task-oriented behavior that occur in a group depend largely on the nature of the task (Carter et al., 1951; Morris, 1966). In a group that is working on a routine production task, most of the task-oriented behavior will consist of production activities—such as sorting, assembly, testing, repair, packaging, transporting, labeling, fabricating, and the operation of machines. In a group working on a decision-making task, most of the task-oriented behavior will consist of the exchange, analysis, and evaluation of information and ideas. For example, in a typical decision-making session, some members will provide information about the problem that the group must solve. Other members will interpret this information, offer opinions about the source of the problem, and suggest possible solutions. Someone may ask for clarification or elaboration of another person's comment. Periodically, someone may summarize what has been said up to that time or point out that the discussion has wandered away from the original problem. Eventually someone will test progress toward agreement on one solution and press for a decision.

Group maintenance behavior

The other category of behavior that is essential for group effectiveness and continuity is known as "group maintenance behavior" or "maintenance-oriented behavior." This broad category includes any behavior that aids in improving interpersonal relationships, maintaining cohesiveness, and managing conflict among group members. When there is excessive hostility and conflict in a group, performance will suffer, and the continued existence of the group may be threatened. For this reason, maintenance-oriented behavior is just as important as task-oriented behavior. Many specific types of maintenance-oriented behavior are possible. For example, if one member feels anxious and insecure, other members can provide encouragement and support. Members can help to create a climate of acceptance by expressing their esteem and affection for each other. If an interpersonal conflict develops, someone may act as a mediator or peacemaker. If a person is about to withdraw from the group because of feeling ignored or rejected, someone can encourage the person to remain in the group. If the group faces a difficult challenge or an outside threat, someone can point out the need for members to pull together as a team and to present a united front.

Self-oriented behavior

In addition to task-oriented and maintenance-oriented behavior, there is usually some self-oriented behavior in groups. This behavior category includes actions by persons that serve their individual needs but do not facilitate the attainment of group goals or cohesiveness. Self-oriented behavior often distracts the group from its task activities and interferes with problem solving (Fouriezos, Hutt, & Guetzkow, 1950). For example, a person may seek attention with provocative comments, excessive joking, bragging, and horseplay. A person may seek sympathy by talking about personal problems and physical ailments. Self-oriented behavior also includes attempts to dominate group discussion by continually interrupting and "shouting down" other speakers. Other attempts to dominate include threats to leave the group or to withhold assistance if a person does not get his or her own way. Excessive self-oriented behavior can adversely affect cohesiveness as well as task performance. Cohesiveness is damaged when disagreement, competition, or jealousy leads to personal insults, sarcasm, threats, and aggressive acts.

ROLE DIFFERENTIATION IN GROUPS

A person's behavior is jointly determined by forces in the situation (e.g., social pressure, job requirements) and forces in the person (e.g., values, attitudes, and needs). The concept of "role" is used to describe how a person perceives the various situational forces on her or him. The concept of "role differentiation" is used to describe how a group establishes distinct roles for each member. These concepts and related ones are helpful for understanding group processes.

Roles

A role is the set of behaviors expected of a person who occupies a particular position in a group or organization. Specific "role expectations" are communicated to a person by other members ("role senders") with whom the person has important relationships. Role expectations are also derived from the obvious requirements of the task itself and from written job descriptions, rules, and standards. If the total set of role expectations does not clearly designate what duties a person is supposed to perform and how the individual should behave, there will be "role ambiguity." Role ambiguity may be due either to insufficient role expectations or to inconsistent role expectations.

Role conflict

Inconsistent role expectations create a "role conflict" for a person. There are at least three kinds of role conflict. The first kind occurs when two or more role senders communicate incompatible role expectations. First-line supervisors often experience this kind of role conflict. Management expects a supervisor to represent the interests of the company, while subordinates of the supervisor expect her or him to go to bat for them and protect their interests.

A second kind of role conflict occurs if a single role sender communicates inconsistent role expectations. For example, a subordinate may be encouraged by the boss to show initiative on some occasions but reprimanded for not following established procedures on other occasions. The same kind of conflict occurs when an employee is expected to attain two goals that are not compatible (e.g., increase production and reduce errors when speed affects error rate).

The third kind of role conflict involves multiple roles. A person often belongs to more than one group or holds more than one position in the organization. The designated behavior for one role may be inconsistent with the designated behavior for another role. For example a person who is responsible for performing a function and for auditing his or her own performance will experience a role conflict and will probably not perform the second role adequately. This kind of conflict may also involve a second role outside of the organization. For example, a contract officer may be a partner in one of the companies bidding for the contract that he/she is expected to assign objectively.

A person who experiences a serious role conflict is likely to become frustrated and upset. The person has a tough time trying to decide which role expectations to accept and which to ignore. Some people try to resolve role conflict by discussing the discrepancies with the role senders. Other people vacillate in their behavior or become paralyzed by indecision. Filley and House (1969, pp. 311–314) reviewed research on the consequences of role conflict and concluded that job satisfaction was lower and individual performance was adversely affected. Thus, although some role conflict is probably inevitable, it should be prevented from becoming excessive.

Task-role organization

The differentiation of speciaized roles is one of the most important processes in groups. In order to achieve its optimal level of performance, a group must develop an efficient "task-role organization." That is, the group's tasks must be subdivided into differentiated task roles in such a way as to obtain the advantages of specialization without creating unmanageable problems of coordination. Then group members must be assigned to these roles in such a way as to achieve a close match between their individual skills and the skill requirements for performance of each role. The optimal task-role organization for a group depends on its task and on the extent to which members are similar or dissimilar with respect to their task skills. More role specialization is required for some kinds of tasks than for others. If a group handles a variety of tasks from time to time, corresponding changes in task-role organization will probably be necessary to handle each task in the most efficient manner. As yet there has not been much research on task-role organization in groups, but the few studies that have been conducted suggest that the consequences for group performance are very substantial (Hewett & O'Brien, 1971; Lanzetta & Roby, 1956; O'Brien & Ilgen, 1968).

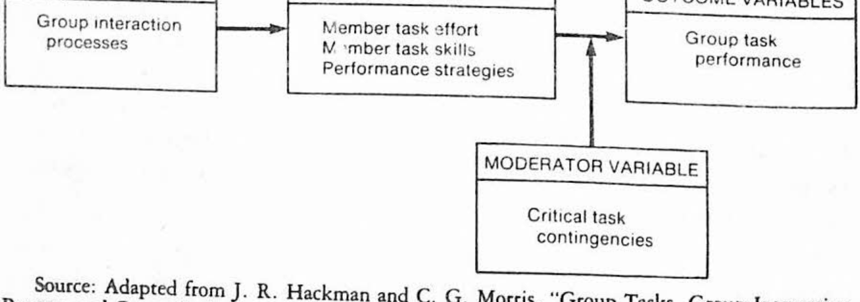
A model of task-group performance

A model identifying the key determinants of task-group performance was proposed by Hackman and Morris (1975). The model is similar in many respects to propositions about group effectiveness in Yukl's (1971, 1981) model of leadership effectiveness. The Hackman and Morris model is depicted in Figure 6–1. According to the model, the performance of a task group is mostly determined by three intervening variables: (1) member effort in doing the task, (2) task-relevant skills of members, and (3) the performance strategies used by the group in doing the work (similar to task-role organization). A group with a high level of member effort, considerable task-relevant skills, and appropriate performance strategies is likely to perform much better than a group with low effort, few skills, or inappropriate strategies.

The importance of each intervening variable depends in part on the nature of the task. Effort is more important when the work is difficult and labor intensive than when it is easy or highly mechanized. Member skills are more important when the task is complex and variable than when it is simple and repetitive. Performance strategies are more important when the work can be organized and performed in many different ways than when the group has no discretion about how to do the work, due to technological constraints or formalized operating procedures (see Chapter 11).

The intervening variables are influenced by group interaction processes. We saw earlier in the chapter that task effort is influenced by group norms and social pressure. In general, effort that is recognized and rewarded by group members and the leader will be enhanced, whereas effort that is ignored or punished will tend to be diminished. Member task skills are affected by the process used to determine group membership. Skills are also affected by the availability of relevant feedback and coaching—from other group members and from the leader. Finally, when a performance strategy is not imposed upon the group by the organization or group leader, the group will adopt either an explicit or an implicit strategy. When group members share a

FIGURE 6–1
A model of task-group performance



Source: Adapted from J. R. Hackman and C. G. Morris, "Group Tasks, Group Interaction Process, and Group Performance Effectiveness: A Review and Proposed Integration," in *Advances in Experimental Social Psychology*, ed. L. Berkowitz (New York: Academic Press, 1975), p. 44.

common belief about the proper way to do the task, they are likely to apply this strategy without any overt discussion about it (Hackman, 1975). In cases where this implicit strategy is inappropriate for the task, performance may be improved if the group plans an explicit strategy before beginning to work on the task (Hackman & Morris, 1975).

DECISION MAKING BY GROUPS

As was mentioned in the previous chapter, many of the important decisions in organizations are made by groups rather than by individuals. Some groups are established exclusively to make organizational decisions. These decision-making groups may be permanent management teams or temporary committees formed to deal with a particular problem. Some planning decisions are necessary even in lower-level groups that have a production task as their primary mission, and these decisions are sometimes made by the group as a whole rather than by the leader alone.

There are both advantages and disadvantages in using groups instead of individuals to make decisions. Groups are more appropriate for making complex decisions that require a pooling of knowledge and ideas by several people. For example, committees are commonly used to coordinate the activities of different but interrelated subunits of an organization, especially when this coordination cannot be achieved effectively by a single manager at a higher level of authority (see Chapter 11). Committees are also appropriate when the power for making a particular kind of decision should not be concentrated in a single person. Committees facilitate the making of difficult and unpopular decisions by allowing the responsibility for them to be diffused among several persons. The evaluation and dismissal of persons with unsatisfactory performance and the imposition of cutbacks in salaries or budgets are examples of this kind of decision. Finally, committees and other decision groups represent a form of participation that usually results in better understanding of decisions and increased commitment to implement them effectively—in comparison with decisions imposed autocratically from above. These benefits occur, to some extent, even when the committee serves an advisory role, but commitment is likely to be higher when the committee actually makes the final decision.

On the other hand, committees usually take much longer to make a decision than a single individual would, and the costs in time entailed by participation in decision making is likely to be considerable for each member of the group. A group decision is not necessarily better than a decision made by a single manager who has all of the relevant information and expertise needed to make the decision. When group members are in sharp disagreement about the objectives of the decision, they often settle upon a poor compromise instead of confronting the conflict openly and trying to find an optimal solution that satisfies each member's needs (see Chapter 8). In groups having a strong commitment to existing policies and practices, members tend to support each other in defensive avoidance of the evidence that these policies and practices are inadequate (Janis & Mann, 1977).

Whether or not a group makes effective decisions depends in part on the nature of the group and the type of decision to be made. Group decisions are strongly affected by a number of group characteristics, including the size and composition of the group, member trait, status differentials, and group cohesiveness.

Group size

A large group has the advantage of more collective knowledge and expertise. The advantage of a large group is particularly great when relevant information and ideas are widely dispersed among many people with different backgrounds and technical specialities. However, as a group grows larger it becomes more difficult to regulate discussion and equalize participation. Less time is available for each group member to speak, and it is common for a few talkative and aggressive persons to dominate the discussion. When this occurs, the remaining members will feel threatened and inhibited about expressing their ideas and preferences. The quality of the decision will suffer, and commitment will be lower for the majority of members who feel left out of the decision process (Slater, 1958; Thomas & Fink, 1963).

Group composition

Research has demonstrated that heterogeneous groups tend to produce better solutions to complex problems, even though they find it more difficult to reach agreement on a solution (Hoffman & Maier, 1961). Groups composed of persons with the same technical speciality (e.g., production, marketing, engineering, finance) tends to define a problem in terms of that speciality, and their problem diagnosis is not necessarily complete or appropriate (Dearborn & Simon, 1958). Groups composed of people with different backgrounds and technical specialities provide a variety of perspectives on a problem and are likely to generate more creative solutions.

Status differentials

Open exchange of information and candid evaluation of ideas is inhibited when status differences in a group are large and obvious.

Low-status members tend to defer to the ideas and opinions of high-status members and will be reluctant to criticize them, even when the basis of the higher status is irrelevant to the decision problem (Berger, Cohen, & Zelditch, 1972; Harvey, 1953). In a group in which each member has relevant knowledge, it is desirable to minimize the influence of status differences on group decisions.

Member traits

The values, attitudes, and personality traits of group members can affect group processes and influence the quality of decisions. Research has shown that groups with compatible members are superior when agreement is necessary under conditions of time pressure (Liddell & Slocum, 1976; Shutz, 1955). Groups with highly competitive and aggressive members are more prone to conflict. Groups with immature and emotionally unstable members have more disruptive, self-oriented behavior.

Group cohesiveness

A cohesive group is more likely to agree on a decision, but members tend to agree too quickly without a complete, objective evaluation of the alternatives. Members of a cohesive group are usually less willing to risk social rejection by questioning a majority viewpoint or presenting a dissenting opinion. Consequently, the critical evaluation of ideas is inhibited during decision making, and creativity is reduced during problem solving.

GROUPTHINK

Sometimes highly cohesive groups experience a phenomenon called "groupthink." Janis (1972) found the following characteristics of groupthink in a series of case studies of decision processes leading up to disastrous political decisions:

1. *Illusion of invulnerability*. Group members overemphasize the strengths of the group and exaggerate its capacity to successfully carry out a risky course of action.
2. *Rationalization of negative information*. Group members collectively discount and rationalize warnings of imminent danger and indications of likely losses from pursuing a particular course of action.
3. *Stereotyping of outgroups*. Group members share a distorted perception of rivals or enemies as too weak and stupid to be a threat, and/or too untrustworthy to negotiate with.
4. *Assumption of morality*. Group members believe that the inherent

morality of their group and its objectives precludes any need to question the morality of the methods used to attain these objectives.

5. *Self-censorship.* Group members keep silent about their doubts and misgivings regarding the group's favored course of action.
6. *Illusion of unanimity.* Group members incorrectly interpret the absence of dissent as indication of agreement.
7. *Mindguarding.* Group members take it upon themselves to protect the group from negative information by suppressing it.
8. *Direct social pressure.* Group members apply social pressure to discourage any expression of doubts or criticism about the group's illusions, stereotypes, or judgments.

With groupthink there is a suspension of critical thinking and a severe reduction in the rationality of decision processes, as defined in the previous chapter by Janis and Mann (1977). The group usually fails to consider a wide variety of alternatives; it seeks out information supporting the preferred alternative; it ignores unfavorable information; it fails to take advantage of opportunities to obtain additional information from experts; and it fails to devote adequate time to discussion of potential costs and obstacles in relation to the preferred alternative. The decision is likely to be a poor one because the group's evaluation of alternatives has been so biased and because it has failed to make contingency plans to deal with forseeable problems in implementing the decision. In groupthink the defensive avoidance that sometimes occurs in individual decision making is magnified by the efforts of group members to achieve consensus and avoid conflict (Janis & Mann, 1977).

The decision made by the Kennedy administration in 1961 to invade Cuba at the Bay of Pigs is a good example of a groupthink decision. Kennedy's advisors included "shrewd thinkers capable of rational analysis and accustomed to speaking their minds" (Janis, 1972, p. 15). Nevertheless, they seriously overestimated the likelihood that a small brigade of 1,400 Cuban exiles would be able to overthrow the Castro regime. Moreover, they failed to consider carefully the risks involved in going forward with the CIA's invasion plan. None of the group members guessed that the unsuccessful invasion would eventually lead to the transformation of Cuba into a Soviet base with nuclear missiles and more than 5,000 Soviet troops only 90 miles from the United States.

Avoiding groupthink

Janis (1972) has proposed a number of procedures for avoiding groupthink in decision groups:

1. The group leader should encourage each member of the group to express any doubts and objections, including criticism of the leader's own judgments.
2. When asking a group to make a decision, the leader or other person assigning the task should avoid making any comments that will bias the group in their deliberations, such as indicating a preference for a particular solution.
3. When a vital policy decision must be made, more than one decision group should be assigned to work on it, each with a different leader.
4. When the group is composed of persons from different organizational subunits, the leader should encourage members to periodically get the reaction of their own staff and co-workers concerning what the group is doing and to report to the group any relevant information, ideas, and criticisms.
5. One or more outside experts should be invited to attend group meetings to challenge the views expressed by the group members.
6. When the group is evaluating alternatives, at least one member of the group should be assigned the role of devil's advocate to challenge the majority position.
7. Whenever a decision involves outside rivals or competitors, adequate time should be set aside to allow the group to carefully consider the intentions and likely reactions of these parties.
8. When a group is evaluating alternatives, it should occasionally break up into subgroups with different leaders, then reconvene to compare judgments.
9. After reaching a preliminary consensus regarding the best alternative, the group should hold a "second chance" meeting to allow members to reconsider the evidence and express any lingering doubts before making a final decision.

It is not necessary for a group to follow all of these procedures for every policy decision. In some cases, a particular procedure may not be feasible or appropriate. For example, using outside experts or outside groups may pose security problems with regard to highly sensitive policy questions. The leader should select a subset of appropriate procedures that taken together will likely prevent suspension of criticial judgment during group decision making.

DECISION PROCESSES AND GROUP LEADERSHIP

Such group characteristics as size and cohesiveness only indirectly influence the quality of group decisions. The group processes leading up to a decision are the immediate determinants of its quality. In order to make a good decision, members must pool their relevant information and contribute their ideas; they must make accurate inferences and predictions about outcomes; and they must be reasonably objective in their evaluation of alternatives. The extent to which a group follows an orderly and systematic decision process depends to a considerable degree on the group leadership. The leadership role can be shared to some extent, but members of decision groups often prefer to have a "take charge" leader who will perform many of the essential leadership functions (Berkowitz, 1953; Schlesinger, Jackson, & Butman, 1960). The role of the leader is to ensure that the decision process proceeds in a systematic manner, not to dominate the discussion with his/her own ideas. Like any other high-status member or dominant personality, the leader can discourage the contribution of ideas and inhibit critical evaluation of proposals. Clearly, the leadership role in decision groups is a difficult one. The group will be ineffective if the leader is either too passive or too domineering.

In this section we will take a closer look at the decision processes in groups and the manner in which these processes are affected by the group leader. Much of the discussion is based on Maier's (1963, 1970) extensive research on the conditions for effective group decisions.

Problem diagnosis

The first step in efficient decision making is diagnosis of the problem. Since the problem is usually defined in terms of a set of obstacles to be overcome in attaining a goal, it is important for group members to agree about the goal. When the members of a group initially disagree about the goal, this disagreement should be resolved before the group begins to identify the obstacles to goal attainment. Consider, for example, a department that had to cut its budget because of an economic recession. Members with substantial seniority defined the problem in terms of the goal of protecting their own jobs and expenditures. They favored laying off newer workers and reducing service. The newer workers defined the problem in terms of the goal of keeping everybody employed and maintaining service. Thus they favored reducing overtime, increasing productivity, and eliminating some special fringe benefits. If a group is unable to agree about goals, the decision will be made by bargaining, coalition formation, and power plays rather than by rational problem solving.

How well a group diagnoses the problem greatly influences the quality of the eventual decision. Problem diagnosis is a difficult process, even if the group has agreed on its goal. Some common mistakes made during diagnosis of a problem include: confusing facts with opinions, confusing symptoms with causes, looking for scapegoats, proposing solutions before the problem is clearly understood, and biasing the problem diagnosis to favor a preferred solution. It is important at this stage of problem solving for the leader to focus the group's attention on diagnosis and to discourage premature consideration of solutions. The group should be encouraged to explore any differences in member perception of the problem and to propose alternative diagnoses before reaching any conclusion about what is "really" the problem. Analysis of factual data from organizational records, surveys, and other sources should be used whenever feasible to supplement subjective opinions about the causes of the problem.

Solution generation

After the problem diagnosis has been completed, the next step is the generation of potential solutions to the problem. Some common mistakes that are made by groups during solution generation include: suggesting solutions that are irrelevant to the problem, discussing what should have been done in the past instead of what can be done in the present, discussing the advantages and disadvantages of a solution before everyone has had a chance to suggest solutions, and focusing on solutions that have been used in the past without any attempt to create novel solutions. The role of the leader should be to encourage members who are shy or inhibited to contribute their ideas, and to help the group avoid the common mistakes made at this stage of problem solving. The leader should avoid showing favoritism to any particular member's solution and should not propose any solutions of his/her own until group members have finished suggesting their solutions. Otherwise, the leader will unduly influence and limit the range of solutions considered.

Solution evaluation

The next step is to evaluate each of the proposed solutions in terms of how successful it is likely to be. The evaluation includes the prediction of major consequences and side effects. Often a particular solution will create new problems, and these may be more difficult to solve than the original problem. It is helpful to arrive at some estimate of the probability of success for each proposed solution and to compare its benefits with its costs. The leader should encourage the use of quantitative methods of forecasting and benefit analysis when these appear to be preferable to subjective judgments.

The mistakes commonly made by groups during the solution evaluation process include: failure to devote adequate attention to forecasting the multiple consequences of a solution, biasing estimates of consequences and estimates of probability to support a "favorite" solution, making verbal attacks on other members instead of limiting discussion to the solutions themselves, and making a hasty choice before the solutions are properly evaluated. Again, the leader can play an important role in helping the group to avoid these kinds of mistakes.

Solution choice

After the proposed solutions are evaluated separately, the group should compare them and attempt to select the best one. Sometimes the choice will be predetermined during the evaluation stage when it becomes obvious that one solution is superior in every respect. However, it is more often the case that there will be several reasonably good solutions, each with its good features and bad features. The group must then weigh all of the tangible and intangible factors and try to come to an agreement.

The best-known choice procedures for groups are *consensus* and *majority rule.* We will define *consensus* as a decision where each member of the group is willing to support a particular solution, even though it is not necessarily a person's first choice. Decision by consensus has certain advantages over majority rule. When decisions are made by majority rule, the greatest danger is that a majority faction or coalition will force a decision before there is adequate time for discussion. When a group is required to reach consensus, it is less likely to make a rash choice or to select an alternative strongly opposed by a sizable minority of members. On the other hand, achieving consensus may require an excessive amount of time. Moreover, consensus decisions encourage compromise solutions designed to accommodate each member, and this kind of solution is sometimes not in the best long-term interests of the group.

A common mistake made at the choice stage is *false consensus*. When some members loudly advocate one solution and the other members remain silent, the silent ones are usually assumed to be in agreement. In fact, silence may indicate dissent rather than agreement. To avoid a false consensus, each member should be encouraged to express a preference and to participate in making the group choice. A secret ballot may be necessary in some cases when group members are very reluctant to openly state their preferences.

It is usually the responsibility of the group leader to ensure that everybody participates and to determine what choice procedure is appropriate. For example, the leader may initially try to obtain a consensus, and if this is impossible, the leader may then try for a majority decision or suggest that the group try to generate additional solutions.

Action planning

The final step in decision making is planning how the decision will be implemented. Detailed action steps and methods for monitoring and evaluating progress should be developed. Some good decisions are unsuccessful simply because nobody bothers to see that this last step is carried out.

When the decision is going to be implemented by persons not involved in making it, these persons may not understand why a particular solution was chosen. Consequently, they may reject the decision, or they may implement it without any real enthusiasm. The best way to avoid this kind of failure is to allow some or all of the implementation personnel to participate in making the decision. If this is not possible, the persons responsible for implementation should at least be informed about what was discussed at each step of the decision-making process and the reasons for the final choice (Schein, 1969).

Decision aids for increasing idea generation

Creative generation of ideas about the nature of the problem and about possible solutions is necessary for effective decision making. As noted earlier, idea generation is often limited by the fear of ridicule and rejection. Research on problem solving indicates that idea generation is less inhibited when it is separated from idea evaluation (Maier & Hoffman, 1960; Maier & Maier, 1957; Maier & Solem, 1952). Based on this and other research, some new procedures have been developed to facilitate creative idea generation in groups.

The first of the new procedures was *brainstorming* (Osborn, 1957). During a brainstorming session group members are encouraged to spontaneously suggest any idea that comes to mind, regardless of how silly it may appear. The ideas are recorded on a blackboard or flip chart. Group members are encouraged to build on each other's ideas, but they are not allowed to evaluate or criticize them. Even nonverbal criticism, such as scowls, groans, sighs, and gestures, is prohibited. Evaluation occurs only after the group has finished generating ideas. Unfortunately, brainstorming is only partially successful; some inhibition still occurs when ideas are first expressed aloud in a group meeting (Bouchard, 1971).

The *nominal-group* technique was inspired by research that discovered more and better ideas are generated by several persons working separately (nominal group) than by the same persons working together in an interacting group (Dunnette, Campbell, & Jaastad, 1963; Van de Ven & Delbecq, 1971; Vroom, Grant, & Cotton, 1969). The conditions of a nominal group are simulated by having members first write their ideas on a slip of paper without discussing them. A period of 5 to 15 minutes is usually required to write ideas. Then each member is asked in turn to contribute one of his/her ideas. As an idea is suggested, it is written on a blackboard or fip chart by the leader. No evaluation or discussion of ideas is permitted during the posting. As the round robin continues, some members may pass if they have no ideas differing from those already posted. However, a person may suggest ideas not on his/her original list, and members are encouraged to build on each other's ideas. After all ideas are posted, the leader goes down the list of ideas and asks if there are any questions, statements of clarification, or statements of agreement or disagreement about the relevance of the ideas. The procedure is applicable for groups of up to nine persons, but it should not be used in larger groups unless carried out within subgroups first, followed by a pooling of ideas from the different subgroups (Delbecq, Van de Ven, & Gustafson, 1975).

Synectics techniques utilize fantasy and analogy to facilitate creative idea generation and encourage new ways of looking at a problem (Gordon, 1961). Although some of the techniques can be used by an individual, they are more appropriate for use in a heterogeneous group of people who can collectively stimulate more psychological risk-taking. The primary objective of synectics techniques is to enhance creativity by overcoming the internal inhibitions resulting from normal ways of perceiving and thinking. Group members are encouraged to express wishful goals, regardless of how unrealistic they may be. Fantasy, word-association games, imagery, metaphors, and other creativity aids are used to generate innovative solutions for a problem. Procedures comparable to the nominal-group techniques are used to minimize inhibition due to external group processes, but these are not considered as important as internal inhibition. The synectics techniques are explained in more detail by Prince (1969, 1970).

SUMMARY

Formal and informal groups can be found in any organization. The informal groups help to satisfy a variety of employee needs, including security and social needs. Consequently, it is not surprising that informal groups exert considerable influence over members' attitudes and behavior. Organizational management should learn to understand and work through informal groups rather than trying to ignore or destroy them.

A group that is cohesive may have either a high or low level of performance, depending on whether its relationship with the parent organization is one of trust and cooperation or one of suspicion and hostility. Absenteeism and turnover are usually lower in cohesive groups, and cohesiveness facilitates cooperation on interdependent tasks. The amount of cohesiveness in a group depends on a variety of group and member characteristics, and some of these can be altered as a means of increasing cohesiveness and teamwork.

Task-oriented behavior and maintenance-oriented behavior are both necessary for the effectiveness and continuity of groups. A person's behavior is determined jointly by individual predispositions and by the role expectations associated with his/her position. If there is role ambiguity or role conflict, the result will be dissatisfaction and suboptimal performance. All groups establish specialized roles for performance of essential functions. A group's effectiveness in performing its task will depend on how well it is organized in terms of differentiated task roles and member role assignments.

For a group with a decision-making task, effectiveness depends on the size and composition of the group, the amount of relevant information possessed by its members, and the decision procedures they use. A poor decision can be caused by mistakes made during the problem-solving and decision-making process. Highly cohesive groups are especially prone to the groupthink phenomenon, wherein group members collectively engage in biased perception and rationalization. Various decision procedures have been developed to avoid groupthink, stimulate idea generation, and avoid common mistakes, such as hasty decisions and incomplete participation. The leader and other group members can be trained to use effective decision procedures.

REVIEW AND DISCUSSION QUESTIONS

1. Define or explain each of the following key terms: *group*, *informal group*, *group norms*, *compliance*, *conformity*, *social pressure*, *cohesiveness*, *reference group*, *status*, *status consensus*, *interaction process analysis*, *task-oriented behavior*, *group maintenance behavior*, *self-oriented behavior*, *roles*, *role differentiation*, *role ambiguity*, *role conflict*, *task-role organization*, *problem solving*, *brainstorming*, *consensus*, *false consensus*, *action planning*, *groupthink*, *nominal group technique*, *synectics techniques*.
2. What functions are performed by informal groups, and why are these groups important?
3. In what ways can groups influence member behavior?
4. How is cohesiveness related to group performance?
5. What kinds of member behavior are essential for the continuity and success of a group?
6. Under what conditions is role conflict likely to occur?
7. When and why is a decision made by a group superior to a decision made by one individual?
8. Under what conditions is a group most likely to be cohesive?
9. Explain the Hackman and Morris model of group effectiveness.
10. How is group decision making affected by characteristics of the group and characteristics of its members?
11. What are the characteristics of groupthink?
12. How can groupthink be avoided?

13. How can the leader of a group help it make better decisions?
14. What are some useful techniques for increasing idea generation in a group?

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7

Leadership in organizations

Effective leadership is vital for the survival and success of an organization. There is no general agreement on the best way to define leadership, but most definitions imply that it is, at least in part, a process of exerting positive influence over other persons. Leadership involves influencing people to exert more effort in some task or to change their behavior. It is important to make a distinction between "leadership" and "effective leadership." Whether or not a leader is effective depends on the eventual outcomes of his/her leadership. The usual criterion of leadership effectiveness in an organization is the long-term performance of the leader's group or subunit. An effective leader or manager not only influences subordinates, but is also able to ensure that they achieve their highest potential performance.

Interest in the subject of leadership has been evident during a considerable period of human history; however, scientific research on leadership is a fairly recent phenomenon. Although, some progress has been made in probing the mysteries surrounding the process of leadership, many questions remain unanswered. The objective of this chapter is to examine several aspects of leadership in order to provide the reader with a better understanding of this vital and complex process. The question of greatest concern is the nature of effective leadership in organizations. Leadership research and some major leadership theories will be examined in an attempt to identify valid prescriptions for effective leadership.

OVERVIEW OF RESEARCH ON LEADERSHIP EFFECTIVENESS

Conceptions of leadership effectiveness differ from writer to writer. One major distinction between different definitions of effectiveness is the type of consequence or outcome used to determine how successful a leader is. These outcomes include such diverse things as group performance, attainment of group objectives, group survival, group preparedness, group capacity to deal with crises, subordinate satisfaction with the leader, subordinate commitment to group objectives, the psychological well-being and personal growth of followers, and the leader's retention of his or her position of authority in the group. The most often used measure of leader effectiveness is the extent to which the leader's group or organizational unit performs its task and attains its objectives.

Leadership effectiveness has been studied in different ways, depending on the researcher's conception of leadership, definition of effectiveness, and methodological preferences. Most studies deal with only one narrow aspect of leadership at a time. The many hundreds of studies appear to fall into a few distinct approaches. The "trait approach" emphasizes the personal qualities of leaders and seeks to identify the traits and skills that contribute to leadership success. The "power-influence approach" attempts to explain leader effectiveness in terms of the source and amount of power possessed by a leader and the manner in which he or she exercises it. The "behavior approach" attempts to identify the pattern of behaviors and/or activities that are characteristic of effective leaders. Situational theories cut across the three major approaches and emphasize how aspects of the leadership situation determine what traits, power, or behaviors are essential for leadership effectiveness. Findings from the trait, power, and behavior approaches will be summarized briefly, then the major situational theories will be reviewed.

TRAITS AND SKILLS OF EFFECTIVE LEADERS

One of the earliest approaches for studying leadership was the trait approach. Underlying this approach was the assumption that certain traits and skills are essential for leadership effectiveness. Hundreds of studies were conducted to look for trait differences between leaders and followers and between effective and ineffective leaders. Stogdill (1948) reviewed the results from 124 trait studies conducted during the period 1904 to 1948 and concluded that individual traits failed to correlate with leadership effectiveness in a strong or consistent manner. The early trait research suffered from several methodological deficiencies, and not much attention was paid to the situation as a determinant of the relevance and priority of different traits.

In recent years, the investigation of leader traits has been more productive. Greater progress can be attributed to the inclusion of more relevant traits in the research, use of better measures of traits, use of longitudinal studies, and examination of trait patterns in addition to results for individual traits. Research carried out in assessment centers has shown that the advancement and success of managers in large organizations can be predicted to a moderate extent from measures of managerial traits and skills. Although the situation largely determines the kinds of specific knowledge necessary for effective leadership, the general pattern of skills, motives, and other traits appears to be much the same for most managers and administrators in large, hierarchical organizations. Detailed reviews of this trait literature have been made by a number of writers (Bass, 1981; Stogdill, 1974; Yukl, 1981). The most interesting findings come from the small number of studies that have attempted to discover the reasons some traits correlate with leader effectiveness. These studies consider the relation between traits and the role requirements and constraints faced by the leader.

Managerial motivation

Managerial motivation has been especially useful as a predictor of leadership success. The importance of managerial motivation was established in the trait studies of the 1950s and 1960s, and in some of the more recent assessment center research (see Chapter 14). More narrowly focused programs of research by Miner (1965, 1978) and by McClelland and his associates (McClelland, 1975; McClelland & Burnham, 1976; McClelland & Winter, 1969) have made especially significant contributions to our understanding of how managerial motivation is related to leadership effectiveness.

Miner formulated a theory of managerial role motivation to describe the type of motivational traits required for success in most management positions in large, hierarchical organizations. The initial traits selected for investigation were based on an analysis of role requirements common to this kind of managerial position, on the results from earlier trait research, and on role theory and psychoanalytic theory. Using a projective test called the Miner Sentence Completion Scale (see Chapter 14), Miner measured six different aspects of managerial motivation, including positive attitude toward authority figures, desire to compete with peers, desire to exercise power, desire to be actively assertive, desire to stand out from the group, and willingness to carry out administrative functions. In 21 samples of managers and administrators in large, bureaucratic organizations, the overall score on managerial motivation correlated significantly with promotion into management and advancement to higher levels of management. The particular motivation subscales that correlated most consistently with managerial success were desire to exercise power, desire to compete with peers, and a positive attitude toward authority figures. However, measures of these aspects of managerial motivation were not correlated significantly with managerial success for managers of branch officers in a consulting firm, administrators in a business school, and educational administrators in small school districts. The results may have been due to criterion problems (see Chapter 13), but it is also possible that these motives are not as important for leaders in smaller, less bureaucratic organizations.

Extensive research on managerial motivation has also been conducted by McClelland and his associates. Using a projective test called the Thematic Apperception Test (see Chapter 14), they measured aspects of motivation that could be expected to have implications for leadership success. In a number of studies carried out over a period of several years, effective managers in large organizations were found to have a strong need for power. In addition, the most effective managers had a "socialized power orientation" rather than a "personalized power orientation." They exercised power to build up the organization and make subordinates feel strong and responsible, instead of for personal aggrandizement or domination of others for its own sake. Because of an orientation toward building subordinate commitment, the manager with a socialized power concern is more likely to use a participative, coaching style of managerial behavior and is less likely to be coercive or autocratic.

Need for achievement is not as essential for managers as need for power; nevertheless, it is an important component of managerial motivation. Need for achievement is associated with a preference for activities that involve initiative, risk taking, and demonstration of individual competence. Successful managers are likely to have moderate to high levels of achievement motivation, but it usually occurs in conjunction with a socialized power concern. The manager strives to accomplish challenging objectives by working through subordinates, rather than trying to accomplish everything by himself or herself. The high degree of ambition, initiative, persistence, and energy of these managers is more likely to be channeled into essential leadership behavior, such as planning, organizing, setting goals, coaching subordinates, and initiating improvement programs.

Managerial skills

In order to be successful, a leader needs to have considerable ability as well as motivation. Three general categories of skills have been found to be relevant for managers and administrators (Katz, 1955; Mann, 1965).

Technical skills: Knowledge about methods, processes, procedures, and techniques for conducting the activities of the leader's work unit.

Interpersonal skills: Knowledge about human behavior and interpersonal processes, ability to understand the feelings, attitudes, and motives of others from what they say and do, ability to communicate in a clear and persuasive manner, ability to establish cooperative relationships (tact, diplomacy, charm, empathy, social sensitivity, persuasiveness, speech fluency, etc.).

Conceptual skills: General analytical ability, logical thinking, proficiency in concept formation and conceptualization of complex and ambiguous relationships, creativity in idea generation and problem solving, ability to analyze events, perceive trends, anticipate changes, and recognize opportunities and potential problems.

Technical skills are primarily concerned with things; interpersonal skills are primarily concerned with people; and conceptual skills are primarily concerned with ideas and concepts. Technical skills are essential for a manager to train and direct subordinates with specialized activities. Interpersonal skills are essential for establishing effective relationships with subordinates, superiors, peers, and outsiders. Conceptual skills are essential for effective planning, organizing, problem solving, innovating, and decision making.

Leaders need all three types of skills to fulfill their role requirements, but the relative importance of these skills depends on the nature of the leadership situation. Skill requirements vary somewhat, depending on the type of organization, level of management, centralization of authority, developmental stage of the organization, and degree to which the environment is stable and benevolent or dynamic and threatening (Yukl, 1981). For example, conceptual skills are usually more important for top executives, whereas technical skills are more important for first-line supervisors.

POWER AND LEADER EFFECTIVENESS

The power research has been concerned with two questions: (1) how effective leaders accumulate power and (2) how they exercise it to influence subordinate commitment. Most research on leader power has examined aspects of power similar to those in French's and Raven's (1959) power typology:

Reward power: The subordinate does something in order to obtain rewards controlled by the leader.

Coercive power: The subordinate does something in order to avoid punishments controlled by the leader.

Legitimate power: The subordinate does something because the leader has the right to request it and the subordinate has the obligation to comply.

Expert power: The subordinate does something because he/she believes that the leader has special knowledge and expertise lacked by the subordinate.

Referent power: The subordinate does something because he/she admires the leader and wants to gain his/her approval.

Accumulation of power

Power is derived in part from the leader's own individual characteristics (personal power) and partly from the attributes of the leadership position (position power). Power is accumulated in the process of interaction with followers. Social Exchange Theory (Hollander, 1979; Jacobs, 1970) has proven useful for explaining how power is gained and lost as the reciprocal influence processes occur between leader and followers over time. By demonstrating competence and loyalty to the group or organization, a member (such as a formal leader) accumulates credits that contribute to the person's relative status and affect expectations about the role he or she should play. If a leader has demonstrated good judgment, followers are more willing to go along when the leader proposes innovative approaches for attaining group goals. The amount of status and influence accorded a leader depends upon the group's evaluation of his or her potential contribution relative to that of other members. The contribution may involve the person's unique control over scarce resources and access to vital information, in addition to skill and expertise in dealing with critical task problems. However, when the leader's proposals result in failure, or the leader otherwise demonstrates poor judgment and lack of responsibility, then he or she will lose status and influence.

Social Exchange Theory portrays the leader role as one in which some innovation is not only accepted, but is expected when the group is confronted by problems and obstacles. The risk of failure cannot be avoided by a leader who refuses to show initiative in the face of serious problems. If no action is taken by the leader, the expertise credits accumulated previously will begin to disappear. The process of subordinate evaluation of the leader's expertise is a continuing one, and a leader cannot maintain a reputation for competence unless the group is making visible progress toward attainment of its goals, or at least has the appearance of progress. As a general guideline for accumulating expert power, a leader should foster an image of experience and competence by keeping informed about technical matters and outside developments that affect the work of the group and by avoiding careless statements and rash decisions. In crisis situations it is essential to remain calm and provide confident, decisive leadership. If a leader vacillates or panics, expert power will be diminished.

Referent power is based on the affection and loyalty of followers, and it too is attained through a process of social exchange. Referent power is increased by acting considerate toward subordinates, showing concern for their needs and feelings, treating subordinates fairly, and defending their interests in dealing with superiors and outsiders. Referent power is diminished when a leader expresses hostility, distrust, rejection, or indifference toward subordinates. Over time, actions speak louder than words, and a leader who tries to appear supportive but who takes advantage of subordinates or fails to go to bat for them will eventually lose his/her referent power. Leaders who desire to develop a special, deeper exchange relationship with subordinates can usually do so by providing valued rewards, delegating more responsibility, and involving subordinates in making work-unit decisions. In return, the leader will receive greater loyalty and subordinate commitment to work-unit objectives (Dansereau, Graen, & Haga, 1975; Graen & Cashman, 1975).

Research on a leader's upward and downward power indicates that the two are related. Without sufficient upward influence to obtain necessary resources, protect group interests, and gain approval for proposed changes, a leader is unlikely to develop an effective exchange relationship with subordinates (Cashman, Dansereau, Graen, & Haga, 1976; Patchen, 1962; Wager, 1965). A leader will lose status and influence with subordinates if he/she lacks the clout to represent them effectively in competition with other groups for scarce resources. Leaders gain upward influence as a result of possessing critical knowledge and ability to perform vital functions and solve important problems for the organization. Upward power can also be increased for forming coalitions with other organizational units and/or outside parties (see Chapter 9).

Exercising power effectively

Findings from research on how to exercise power effectively have been reviewed by several writers recently (Bass, 1981; Sayles, 1979; Yukl, 1981). The research seems to indicate that effective leaders rely more on expert and referent power to influence subordinates. A major deficiency of the research is that it does not consider the skill and behavior of the leader in exercising power. The outcome of a particular influence attempt will depend as much on the leader's skill as on the type and amount of power possessed by the leader. Unless used skillfully, expert and referent power may not result in subordinate commitment. Reward, coercive, and legitimate power are likely to result in resistance rather than compliance with leader requests unless these forms of power are used skillfully. As yet, there has been relatively little research on different approaches and procedures for exercising power successfully. However, findings from research on motivation, attitude change, counseling, bargaining, conflict resolution, and other topics suggest that all of the different forms of power can be effective when used skillfully in an appropriate situation. The effective use of power by a leader requires both the ability to diagnose the situation and determine what influence strategy is appropriate and the ability to exercise the appropriate forms of power in a manner that leads to subordinate commitment. One of the most important considerations in the successful use of power is to minimize status differentials and avoid threatening the self-esteem of subordinates. Other factors that determine the success of an influence attempt include clarity of a request, timing and appropriateness of a request, and the extent to which a request takes into account subordinate needs and concerns. Further guidelines for exercising power in a subtle, nonmanipulative fashion can be found in Yukl (1981).

How much power?

Another question that has been of interest to power researchers is the matter of how much power is needed for a leader to be effective. The optimal amount of position power appears to depend on the nature of the organization, task, and subordinates. If a leader has too much reward and coercive power, he or she may be tempted to rely on them excessively, instead of developing and using expert and referent power. This path leads to resentment and rebellion. On the other hand, if the leader lacks sufficient position power to provide equitable rewards, make necessary changes, and punish chronic troublemakers, then the leader will find it difficult to develop a high performing group. The question of how much personal power is desirable is more complex. Personal power is less susceptible to misuse, since it is rapidly eroded when a leader acts contrary to the interests of followers. Nevertheless, the potential for corruption of the leader remains. It is quite possible that a leader with exceptional expertise or intense charismatic appeal will be tempted to believe he or she knows what is best for followers and to gradually become more authoritarian and domineering. One of the best ways to ensure that a leader remains responsive to subordinate needs is to provide formal mechanisms to promote reciprocal influence and discourage arbitrary actions by the leader. Some examples of such mechanisms include rules regulating exercise of reward and coercive power, grievance and appeals procedures, and obligatory consultation with subordinates.

EFFECTIVE LEADERSHIP BEHAVIOR

Research on leadership behavior has usually been concerned either with describing the nature of managerial work or with identifying differences in behavior between effective and ineffective leaders. Self-report diaries kept by the managers themselves and observation by behavioral scientists are the research methods used most often to describe what managers do.

Managerial activities and roles

The best-known research on the nature of managerial work is that conducted by Mintzberg (1973). In addition to his own observational study of executives, Mintzberg reviewed the results from earlier studies using observation or diaries. This research has also been reviewed by McCall, Morrison, and Hannan (1978). The research showed that managerial work typically involves a large variety of activities during the day, and these activities are usually characterized by brevity and fragmentation. Managers show a strong preference for oral communication, and they spend considerable time interacting with persons outside of the immediate work unit, such as superiors, peers, clients, and suppliers. Mintzberg found that managers tend to gravitate toward the active aspects of their jobs, and they prefer activities that are nonroutine but well defined. The focus of interest is on current information rather than old information, and on specific issues rather than general ones. Contrary to the common image of the manager as a reflective planner, managers were seldom found to engage in general planning or abstract discussion. Mintzberg suggests that managerial effectiveness can be improved if less time is spent on superficial activities and more time is devoted to important but neglected functions, such as planning and organizing, subordinate development, and team building.

Mintzberg (1973) has proposed a set of 10 underlying managerial roles for use in classifying managerial activities (see Table 7–1). The 10 roles are applicable to any manager or administrator, but their relative importance varies from one kind of manager to another. A manager's roles are largely predetermined by the nature of his or her position, but the manager can interpret them in different ways while carrying them out. Three of the managerial roles deal with interpersonal behavior ("figurehead," "leader," "liaison"); three roles deal with information processing ("monitor," "disseminator," "spokesman"); and the remaining four roles deal with decision making ("entrepreneur," "disturbance handler," "resource allocator," "negotiator").

Preliminary evaluations of the descriptive research is that it has provided a more accurate picture of managerial work but has done little to identify behavior required for managerial effectiveness. Only a few of

TABLE 7–1
Mintzberg's ten managerial roles

Role	*Description*	*Identifiable activities from study of chief executives*	*Recognition in the literature*
INTERPERSONAL:			
Figurehead	Symbolic head; obliged to perform a number of routine duties of a legal or social nature.	Ceremony, status requests, solicitations.	Sometimes recognized, but usually only at highest organizational levels.
Leader	Responsible for the motivation and activation of subordinates; responsible for staffing, training, and associated duties.	Virtually all managerial activities involving subordinates.	Most widely recognized of all managerial roles.
Liaison	Maintains self-developed network of outside contacts and informers who provide favors and information.	Acknowledgements of mail; external board work; other activities involving outsiders.	Largely ignored, except for particular empirical studies.
INFORMATIONAL:			
Monitor	Seeks and receives wide variety of special information (much of it current) to develop thorough understanding of organization and environment; emerges as nerve center of internal and external information of the organization.	Handling all mail and contacts categorized as concerned primarily with receiving information (e.g., periodical news, observational tours).	Recognized sometimes.

Disseminator	Transmits information received from outsiders or from other subordinates to members of the organization; some information factual, some involving interpretation and integration of diverse value positions of organizational influencers.	Forwarding mail into organization for informational purposes, verbal contacts involving information flow to subordinates (e.g., review sessions, instant communication flows).	Largely unrecognized.
Spokesperson	Transmits information to outsiders on organization's plans, policies, actions, results, etc.; serves as expert on organization's industry.	Board meetings; handling mail and contacts involving transmission of information to outsiders.	Generally acknowledged as managerial role.
DECISIONAL:			
Entrepreneur	Searches organization and its environment for opportunities and initiates "improvement projects" to bring about change; supervises design of certain projects as well.	Strategy and review sessions involving initiation or design of improvement projects.	Implicitly acknowledged, but usually not analyzed except for economists (who were concerned largely with the establishment of new organizations).
Disturbance handler	Responsible for corrective action when organization faces important, unexpected disturbances.	Strategy and review sessions involving disturbances and crises.	Discussed in abstract way by many writers (e.g., management by exception) but seldom analyzed carefully.
Resource allocator	Responsible for the allocation of organizational resources of all kinds—in effect the making or approval of all significant organizational decisions.	Scheduling; requests for authorization; any activity involving budgeting and the programming of subordinates' work.	Little explicit recognition as a role, although implicitly recognized by the many who analyze organizational resource-allocation activities.
Negotiator	Responsible for representing the organization at major negotiations.	Negotiation.	Largely unrecognized (or recognized but claimed to be nonmanagerial work).

Source: Adapted from Table 2, "Summary of Ten Roles", in H. Mintzberg, *The Nature of Managerial Work* (New York: Harper & Row, 1973), pp. 92–93. Copyright © 1973 by Henry Mintzberg. Reprinted by permission of Harper & Row, Publishers, Inc.

the studies have attempted to relate activity patterns to measures of group performance, and these studies were not very successful in finding significant relationships. The validity of Mintzberg's 10 roles has yet to be established, and a recent study by McCall and Segrist (1980) found evidence for only 6 of the 10 roles.

Ohio State leadership studies

By far the greatest number of studies on effective leadership behavior have used questionnaires as the research method. The typical approach has been to compare behavior patterns of effective and ineffective leaders, or to correlate behavior descriptions of leaders with independent criteria of leader effectiveness, such as group performance or ratings made by superiors. The questionnaire research has been dominated by the concepts and methods that stem from the leadership studies at Ohio State University in the early 1950s. The psychologists involved in these leadership studies developed questionnaires for subordinates, peers, or superiors to use in describing the behavior of a leader. The leadership questionnaires were composed of many items, and each item dealt with a specific aspect of a leader's behavior. Persons in different kinds of organizations were given the questionnaires and asked to use them to describe their leaders. The responses were analyzed to determine which behavior items tended to be answered in the same way. Two major behavior categories were found, and they were labeled "consideration" and "initiating structure" (Fleishman, 1953; Halpin & Winer, 1957).

Consideration is the degree to which a leader acts in a warm and supportive manner and shows concern for subordinates. Some examples of consideration include: being friendly and approachable, doing personal favors for subordinates, backing up or going to bat for subordinates, consulting with subordinates on important matters before going ahead, finding time to listen to subordinates' problems, being willing to accept subordinate suggestions, looking out for the welfare of individual subordinates, and treating a subordinate like an equal.

Initiating structure is the degree to which a leader defines and structures his/her own role and the roles of subordinates toward attainment of the group's formal goals. Some examples of initiating structure include: criticizing poor work, emphasizing the necessity of meeting deadlines, assigning subordinates to tasks, letting subordinates know what is expected of them, coordinating the activities of subordinates, offering new approaches to problems, maintaining definite standards of performance, asking subordinates to follow standard operating procedures, and seeing that subordinates are working up to capacity.

Consideration and initiating structure were found to be relatively independent behavior categories. Some leaders are high on consideration and low on initiating structure; some leaders are low on consideration and high on initiating structure; some leaders are high on both behavior categories; and some leaders are low on both behavior categories.

Based on the results from the initial research, two leadership questionnaires were developed to measure leader consideration and initiating structure. The questionnaires were called the Leader Behavior Description Questionnaire (LBDQ) and the Supervisory Behavior Description Questionnaire (SBDQ). Hundreds of studies were subsequently conducted to determine how these leader behaviors are related to subordinate motivation, satisfaction, and performance. In general, the results have been inconsistent and inconclusive (Kerr & Schriesheim, 1974; Korman, 1966; Yukl, 1971). Most of the research consists of correlational studies, and interpretation of causality is complicated by the finding from some experimental studies that causality is reciprocal. That is, leader behavior affects subordinate behavior, but it is also affected by subordinate behavior (Herold, 1977; Lowin & Craig, 1968). The only consistent finding in the leader behavior research is that subordinates are more satisfied with a leader who is high or moderately high on consideration than with one who is inconsiderate, which is hardly a momentous discovery (see Chapter 3). Otherwise, the results suggest that the effects of leader behavior depend on the situation (Bass, 1981; Yukl, 1981).

Michigan studies

A program of leadership research carried out at the University of Michigan in the 1950s, (Likert, 1961, 1967) provided additional insight into the reasons for leader effectiveness. Comparisons of behavior patterns for effective and ineffective managers revealed that effective managers usually concentrated on such administrative functions as planning, coordinating, and facilitating work. These task-oriented aspects of leadership were carried out without neglecting interpersonal relations with subordinates. Effective managers were more likely to treat subordinates in a considerate, supportive manner and to allow them some autonomy in deciding how to do the work and pace themselves. In addition, effective leaders were more likely to set high performance goals for subordinates, to use group methods of supervision (e.g., group meetings to discuss problems and make decisions), and to serve as a "linking pin" (see Chapter 11) with other groups and with higher management.

Behavior taxonomies

A major reason for lack of greater progress in the behavior research has been inadequate conceptualization of leadership behavior and reliance on inaccurate measures. Various behavior taxonomies have been proposed since the early Ohio State studies, including those of Stogdill (1974), Bowers and Seashore (1966), and Bass and Valenzi (1974), among others. The various behavior taxonomies have differed considerably, and none of them has satisfied the need for a set of behavior categories that are comprehensive, relevant for leader effectiveness, applicable to different kinds of leaders, and capable of being measured with a variety of techniques. Yukl (1982) and his colleagues have been engaged in a program of research to generate a more satisfactory leader behavior taxonomy. The behavior categories in the most recent version of the taxonomy are labeled and defined in Table 7–2. Preliminary research on leader effectiveness using the specific behaviors in the Yukl taxonomy suggest that they are much more useful than general categories, such as consideration and initiating structure for discovering what effective leaders do (Yukl & Van Fleet, 1982).

TABLE 7–2
Definition of managerial behaviors in Yukl's taxonomy

Performance emphasis: the extent to which a leader emphasizes the importance of subordinate performance and encourages subordinates to make a maximum effort.

Role clarification: the extent to which a leader informs subordinates about their duties and responsibilities, clarifies rules and policies, and lets subordinates know what is expected of them.

Training-coaching: the extent to which a leader provides any necessary training and coaching to subordinates, or arranges for others to provide it.

Goal setting: the extent to which a leader, either alone or jointly with a subordinate, sets specific, challenging, but realistic performance goals for each important aspect of the subordinate's job.

Planning: the extent to which a leader plans in advance how to efficiently organize, and schedule the work, coordinate workunit activities, accomplish task objectives, and avoid or cope with potential problems.

Innovating: the extent to which a leader looks for new opportunities for the work unit to exploit, proposes new activities to undertake, and offers innovative ideas for strengthening the work unit.

Problem solving: the extent to which a leader takes prompt and decisive action to deal with serious work-related problems and disturbances.

Work facilitation: the extent to which a leader provides subordinates with any supplies, equipment, support services, and other resources necessary to do their work effectively.

Monitoring operations: the extent to which a leader keeps informed about the activities within his/her work unit and checks on the performance of subordinates.

External monitoring: the extent to which a leader keeps informed about outside events that have important implications for his/her work unit.

Information dissemination: the extent to which a leader keeps subordinates informed about decisions, events, and developments that affect their work.

Discipline: the extent to which a leader takes appropriate disciplinary action to deal with a subordinate who violates a rule, disobeys an order, or has consistently poor performance.

Representation: the extent to which a leader promotes and defends the interests of his/her work unit

TABLE 7–2 *(concluded)*

and takes appropriate action to obtain necessary resources and support for the work unit from superiors, peers, and outsiders.

Consideration: the extent to which a leader is friendly, supportive, and considerate in his/her behavior toward subordinates.

Career counseling and facilitation: the extent to which a leader offers helpful advice to subordinates on how to advance their careers, encourages them to develop their skills, and otherwise aids their professional development.

Inspiration: the extent to which a leader stimulates enthusiasm among subordinates for the work of the group, and says things to build their confidence in the group's ability to successfully attain its objectives.

Praise recognition: the extent to which a leader provides appropriate praise and recognition to subordinates with effective performance, and shows appreciation for special efforts and contributions made by subordinates.

Structuring reward contingencies: the extent to which a leader rewards effective subordinate performance with tangible benefits, such as a pay increase, promotion, better assignments, better work schedule, extra time off, etc.

Decision participation: the extent to which a leader consults with subordinates before making work-related decisions, and otherwise allows subordinates to influence his/her decisions.

Autonomy delegation: the extent to which a leader delegates responsibility and authority to subordinates and allows them discretion in determining how to do their work.

Interaction facilitation: the extent to which a leader emphasizes teamwork and tries to promote cooperation, cohesiveness, and identification with the group.

Conflict management: the extent to which a leader discourages unnecessary fighting and bickering among subordinates, and helps them settle conflicts and disagreements in a constructive manner.

Constructive criticism: the extent to which a leader criticizes subordinate mistakes and poor performance in a constructive, calm, and helpful manner.

Source: G. Yukl, "Innovations in Research on Leader Behavior," paper presented at a meeting of the Eastern Academy of Management, Baltimore, May 14, 1982.

SITUATIONAL THEORIES OF LEADERSHIP

The clearly dominant trend of leadership theory over the past two decades has been toward development of situational or "contingency" theories of leadership effectiveness. These theories are concerned with the way that aspects of the situation enhance or diminish the effects of leadership upon subordinate motivation, satisfaction, and performance. Five situational theories will be reviewed briefly in the remainder of this chapter. A more detailed description of these and other situational leadership theories can be found in Yukl's (1981) book.

Fiedler's contingency model of leadership

Fiedler (1967, 1978) has attempted to explain leader effectiveness in terms of a leader trait measure called the "least-preferred co-worker" score (LPC). The LPC score is determined by asking a leader to think of all past and present co-workers and select the one with whom he/she could work least well. The leader is then asked to rate this person on a series of bipolar adjective scales, such as those shown in Figure 7–1.

FIGURE 7–1
Example of an LPC scale

Instructions:

People differ in the ways they think about those with whom they work. On the scale below are pairs of words which are opposite in meaning. You are asked to describe someone with whom you have worked by placing an "X" in one of the eight spaces on the line between the two words. Each space represents how well the adjective fits the person you are describing, as in the following example:

Very neat:____:____:____:____:____:____:____:____:Not neat

8	7	6	5	4	3	2	1
Very neat	Quite neat	Somewhat neat	Slightly neat	Slightly untidy	Somewhat untidy	Quite untidy	Very untidy

Now, think of the person with whom you can work least well. He may be someone you work with now, or he may be someone you knew in the past. He does not have to be the person you like least well, but should be the person with whom you had the most difficulty in getting a job done. Describe this person as he appears to you.

Pleasant :____:____:____:____|____:____:____:____: Unpleasant
Friendly :____:____:____:____|____:____:____:____: Unfriendly
Rejecting :____:____:____:____|____:____:____:____: Accepting
Helpful :____:____:____:____|____:____:____:____: Frustrating
Unenthusiastic :____:____:____:____|____:____:____:____: Enthusiastic
Tense :____:____:____:____|____:____:____:____: Relaxed
Distant :____:____:____:____|____:____:____:____: Close
Cold :____:____:____:____|____:____:____:____: Warm
Cooperative :____:____:____:____|____:____:____:____: Uncooperative
Supportive :____:____:____:____|____:____:____:____: Hostile
Boring :____:____:____:____|____:____:____:____: Interesting
Quarrelsome :____:____:____:____|____:____:____:____: Harmonious
Self-assured :____:____:____:____|____:____:____:____: Hesitant
Efficient :____:____:____:____|____:____:____:____: Inefficient
Gloomy :____:____:____:____|____:____:____:____: Cheerful
Open :____:____:____:____|____:____:____:____: Guarded

Source: Adapted from pp. 267–69 of *A Theory of Leadership Effectiveness* by Fred E. Fiedler, Copyright © 1967 by McGraw-Hill, Inc. Used with permission of McGraw-Hill Book Company.

The leader's LPC score is simply the sum of the numerical ratings of the least-preferred coworker on all of the bipolar adjective scales. A leader who is generally critical in rating the least-preferred co-worker will obtain a low LPC score, whereas a leader who is generally lenient in rating the least preferred co-worker will obtain a high LPC score.

The interpretation of LPC scores has changed several times over the years. According to Fiedler's (1978) most recent interpretation, the LPC score reflects the motive hierarchy of the leader. A high-LPC leader is primarily motivated to have close, interpersonal relationships with other persons, including subordinates, and will act in a considerate, supportive manner if relationships need to be improved. Achievement of task motives is a secondary motive that will become important only if the leader's primary affiliation motive is already satisfied by close personal relationships with subordinates and peers. A low-LPC leader is primarily motivated by achievement of task objectives and will emphasize task-oriented behavior whenever there are task problems. The secondary motive of establishing good relations with subordinates will become important only if the group is performing well and there are no serious task problems.

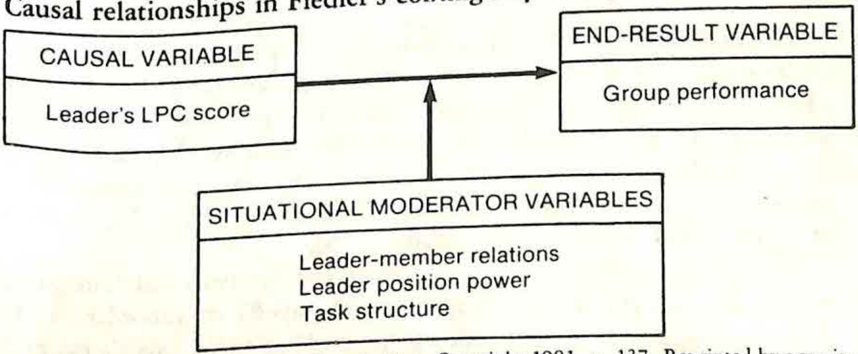
After reviewing 25 years of research on LPC scores, Rice (1978) concluded that the data better support a value-attitude interpretation than a motive hierarchy interpretation. That is, low-LPC leaders value task success, whereas high-LPC leaders value interpersonal success. For each type of leader the precise pattern of behavior probably depends on the situation. However, evidence on behavioral correlates of LPC is not clear or consistent.

In Fiedler's model, the relationship between a leader's LPC score and leader effectiveness depends on how favorable the situation is for the leader (see Figure 7–2). Fiedler defines *favorability* as the extent to which the situation gives the leader control over subordinates. Favorability is measured in terms of three situational variables:

Leader-member relations: The extent to which relations between the leader and his/her subordinates are friendly and cooperative, and the leader has the support and loyalty of subordinates.

Position power: The extent to which the leader has authority to evaluate subordinate performance and administer rewards and punishments.

FIGURE 7–2
Causal relationships in Fiedler's contingency theory



Source: G. Yukl, *Leadership in Organizations,* Copyright 1981, p. 137. Reprinted by permission of Prentice-Hall, Inc., Englewood Cliffs, N.J.

Task structure: The extent to which there is a detailed description of the finished product or service, there are standard operating procedures to accomplish the task, and there are objective indicators of how well the task is being performed.

The situation is most favorable when leader-member relations are good, the leader has substantial position power, and the task is highly structured. When leader-member relations are good, subordinates are more likely to comply with leader requests and directions, rather than ignore or subvert them. When a leader has substantial position power, it is easier to influence and motivate subordinates. Finally, when the task is highly structured, it is easier for the leader to direct subordinates and monitor their performance. Fiedler has found that leader-member relations are the most important determinant of situational favorability, followed by task structure and then position power.

According to Fiedler's theory, leaders with low LPC scores will be more effective than leaders with high LPC scores when the situation is either very favorable or very unfavorable. On the other hand, when the situation is intermediate in favorability, high-LPC leaders will be more effective than low-LPC leaders. There is considerable evidence supporting these propositions, but many of the correlations are nonsignificant, and the validity of the supporting data has been questioned by a number of critics (Ashour, 1973; Graen, Alvares, Orris, & Martella, 1970; McMahon, 1972; Schriesheim & Kerr, 1976; Shiflett, 1973). Continuing controversies about the Contingency Model have yet to be resolved. One of the most telling criticisms is that the model fails to provide a satisfactory explanation of the correlation between LPC scores and leader effectiveness. We do not know why a high-LPC leader is more effective in some situations and a low-LPC leader is more effective in others. It is not clear how the two kinds of leaders differ in their behavior, or what they do to increase group performance.

Path-Goal Theory of leadership

The Path-Goal Theory of leadership was developed to explain how a leader's behavior affects the motivation and satisfaction of subordinates. After an early, nonsituational version of the theory was proposed by Evans (1970), House (1971) formulated a more elaborate version that included situational variables. The theory has since been refined and extended by a number of writers (House & Dessler, 1974; House & Mitchell, 1974; Stinson & Johnson, 1975).

According to House (1971, p. 324), "the motivational function of the leader consists of increasing personal payoffs to subordinates for work-goal attainment, and making the path to these payoffs easier to travel by clarifying it, reducing roadblocks and pitfalls, and increasing the opportunities for personal satisfaction en route." The leader's motivational functions are supplemental ones. A leader should provide subordinates with essential coaching, guidance, and performance incentives that are not otherwise provided by the organization or work group.

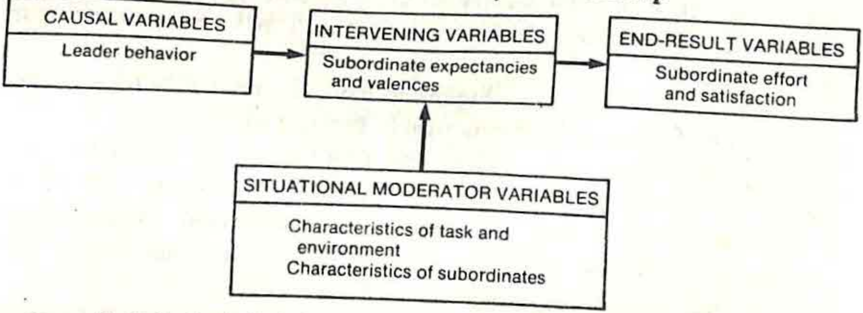
In addition to its effect on subordinate motivation, a leader's behavior will affect subordinate job satisfaction, particularly satisfaction with the leader. According to House and Dessler (1974, p. 31), "leader behavior will be viewed as acceptable to subordinates to the extent that the subordinates see such behavior as either an immediate source of satisfaction or as instrumental to future satisfaction." The effect of the leader's actions on subordinate satisfaction is not necessarily the same as the effect on motivation. Depending on the situation, a leader's actions may increase or decrease either or both of these.

According to Path-Goal Theory, the effect of leader behavior on subordinate motivation and satisfaction depends on the situation (see Figure 7–3). Characteristics of the subordinates (e.g., ability, personality) and characteristics of the environment (e.g., type of task) determine both the potential for increased motivation and the manner in which the leader must act to improve motivation. Situational variables also determine subordinate preferences for a particular pattern of leadership behavior, thereby influencing the impact of the leader on subordinate satisfaction.

The latest version of the theory includes four categories of leader behavior (House & Mitchell, 1974). These behaviors are defined as follows:

> *Supportive leadership:* Behavior that includes giving consideration to the needs of subordinates displaying concern for their welfare, and creating a friendly climate in the work unit (similar to consideration).

FIGURE 7–3
Causal relationships in Path-Goal Theory of leadership


CAUSAL VARIABLES
Leader behavior
INTERVENING VARIABLES
Subordinate expectancies and valences
END-RESULT VARIABLES
Subordinate effort and satisfaction
SITUATIONAL MODERATOR VARIABLES
Characteristics of task and environment
Characteristics of subordinates

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Directive leadership: Letting subordinates know what they are expected to do, giving specific guidance, asking subordinates to follow rules and procedures, scheduling and coordinating the work (similar to initiating structure).

Participative leadership: Consulting with subordinates and taking their opinions and suggestions into account when making decisions.

Achievement-oriented leadership: Setting challenging goals, seeking performance improvements, emphasizing excellence in performance, and showing confidence that subordinates will attain high standards.

According to the theory, the impact of leader behavior on subordinate motivation can be understood by examining how the leader affects subordinate expectations about the likely outcomes of different courses of action. A subordinate will only have a high degree of task motivation when he or she perceives that efforts to improve performance are likely to be successful and will lead in turn to desirable outcomes. The reader will probably recognize that the intervening variables in the motivational "core" of Path-Goal Theory comes from expectancy theory (see Chapter 2).

In situations where there is role ambiguity, directive leadership that clarifies each subordinate's role will increase motivation by increasing the expectancy of subordinates that their effort will lead to higher performance. Directive behavior will also increase satisfaction to the extent that there is role ambiguity and subordinates desire greater clarity.

Supportive leadership behavior will increase motivation and satisfaction when the task is stressful, tedious, boring, or dangerous. By acting considerate and supportive and by trying to minimize the negative aspects of the task, the leader makes it more tolerable for the subordinates.

Achievement-oriented leadership will cause subordinates to have more confidence in their ability to attain challenging goals, thereby increasing the likelihood that subordinates will make a serious effort in doing the task.

Participative leadership is hypothesized to increase subordinate motivation when the task is unstructured. While participating in decision making about task goals, plans, and procedures, subordinates get a clearer picture of the role they are expected to perform. The act of participating may or may not improve job satisfaction, depending on whether subordinates have the kind of personality that would lead them to desire more responsibility and participation.

Research conducted to test Path-Goal Theory has yielded mixed results. Reviews of this research (House & Mitchell, 1974; Schriesheim & Von Glinow, 1977) find that some studies support the theory, and others do not. A possible reason for the lack of conclusive results is that much of the validation research suffers from serious methodological limitations (Yukl, 1981). Part of the difficulty in testing the theory properly is due to the conceptual ambiguity of the theory and the confusion caused by different versions of the theory. Conceptual weaknesses have been pointed out by several critics (Osborn, 1974; Schriesheim & Kerr, 1976; Stinson & Johnson, 1975; Yukl, 1981). Despite its limitations Path-Goal Theory has made a contribution to the study of leadership by providing insights into the motivational functions of leaders and by identifying potentially important situational moderator variables.

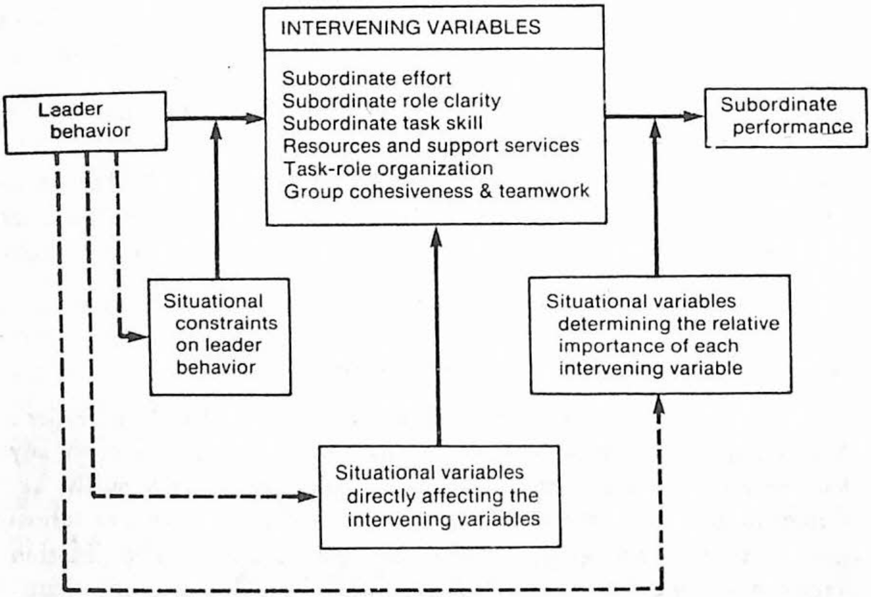
Multiple-Linkage Model of leader effectiveness

According to Yukl's (1981) Multiple-Linkage Model, a leader's short-term effectiveness depends on his or her ability to correct any deficiencies in subordinate motivation, role clarity, task skills, resources needed to do the task, organization and coordination of subordinate activities, and group cohesiveness and teamwork. The situation determines which of these "intervening" variables are important, which are in need of improvement, and what potential corrective actions are available to the leader. The causal relationships are shown in Figure 7–4. A leader will not be optimally effective if he or she fails to recognize deficiencies in the intervening variables, if the deficiencies are recognized but the leader fails to act, or if the leader acts but lacks the necessary skill to accomplish the desired improvements. The model does not imply that only one particular pattern of leader behavior is optimal in a given situation. Instead, the possibility of alternative sequences of corrective actions is recognized, and the identification of these behavior patterns is regarded as an empirical question that has only been partially answered by prior research.

The Multiple-Linkage Model recognizes that the potential short-term influence of the leader on the intervening variables and thus on group performance is much greater in some situations than in others. The leader will have little short-term influence on subordinate performance if there are no serious deficiencies. Also, if there are deficiencies, but situational constraints prevent the leader from acting to correct them, the leader will have little short-term impact on subordinate performance.

A second basic proposition of the Multiple-Linkage Model is that, over a longer time period, leaders can act to change some of the situational variables and create a more favorable situation. Leader

FIGURE 7-4
Causal relationships in the Multiple-Linkage Model of Leadership Effectiveness


INTERVENING VARIABLES
Subordinate effort
Subordinate role clarity
Subordinate task skill
Resources and support services
Task-role organization
Group cohesiveness & teamwork
Leader behavior
Subordinate performance
Situational constraints on leader behavior
Situational variables determining the relative importance of each intervening variable
Situational variables directly affecting the intervening variables

Source: G. Yukl, *Leadership in Organizations,* Copyright 1981, p. 161. Reprinted by permission of Prentice-Hall, Inc., Englewood Cliffs, N.J.

behavior affecting situational variables involves strategic planning, policy formation, program development, organizational change, and political activities or public relations efforts with superiors and other important persons outside of the leader's organizational unit. These long-range actions may be directed at changing any of the three types of situational variables. The leader may change the situation in order to alter the relative importance of some situational variables, to correct chronic deficiencies caused by the existing situation, or to eliminate situational constraints on future short-term corrective actions. By successfully pursuing these kinds of changes over a period of months and years, a leader is sometimes able to do more to improve group performance than is possible by short-term responses to immediate deficiencies in intervening variables. The following are examples of possible strategies to improve the leadership situation (Yukl, 1981, p. 160):

1. Developing better relations with superiors to increase their trust and support and persuade them to provide more authority to deal decisively with work-unit problems.
2. Gaining more control over input acquisition (e.g., supplies, re-

sources, support services) or output disposal (e.g., external markets) by cultivating better relationships with suppliers and clients, finding new sources of supplies and resources, finding additional clients, and reducing dependence on unreliable suppliers or customers.

3. Initiating new and more profitable activities, products, services for the work unit to improve utilization of existing personnel, equipment, and facilities.
4. Initiating long-term improvement programs designed to upgrade personnel, equipment, and/or facilities.
5. Changing the structure of the organizational unit by redefining authority relationships, increasing delegation or centralization of decision making, creating or eliminating positions or subunits, and modifying communication patterns and information systems in order to solve chronic problems and reduce demands on the leader for short-term troubleshooting activities.

The Multiple-Linkage Model is a sketchy model rather than an elaborate, formal theory. It was developed to aid in the analysis of leadership effectiveness of administrators in formal organizations, and to help identify important variables to study. The model has not yet been tested, and it is doubtful that it can be properly tested in its present form, due to the absence of specific hypotheses.

Substitutes for leadership

Kerr and Jermier (1978) developed a model to identify aspects of the situation that reduce the importance of managerial leadership. The model makes a distinction between two kinds of situational variables: "substitutes" and "neutralizers." Substitutes make leader behavior unnecessary and redundant. They include any characteristics of the subordinates, task, or organization that ensure subordinates will clearly understand their roles, know how to do the work, be highly motivated, and be satisfied with their jobs. Neutralizers are any characteristics of the task or organization that prevent a leader from acting in a specified way or that counteract the effects of the leader's behavior.

According to Kerr and Jermier a number of subordinate characteristics may serve as substitutes and/or neutralizers for supportive and instrumental leadership. Supportive leadership is defined in a way similar to consideration, and instrumental leadership is similar to initiating structure. Extensive prior experience or training of subordinates serves as a substitute for instrumental behavior by the leader. Little direction is necessary because subordinates already possess the skills and knowledge to know what to do and how to do it. For example, medical doctors, airline pilots, accountants, electricians, and other professionals and craftsmen do not require close supervision. Likewise, most professionals are internally motivated by their values, needs, and ethics, so they do not need to be influenced by the leader to do high-quality work.

Various task attributes also serve as substitutes for instrumental leader behavior. If the task is simple and repetitive, subordinates may be able to learn the appropriate skills quickly without extensive training and direction by the leader. If the task automatically provides feedback to the worker on how well the work is being performed, then the need for extrinsic feedback from the leader is greatly reduced. If the task is interesting and enjoyable, the leader does not need to provide supportive leadership that might otherwise be required to make the job situation tolerable to subordinates.

Like prior experience or simple tasks, organizational formalization (see Chapter 10) can serve as a substitute for instrumental leadership behavior. In organizations with detailed written plans, rules, procedures, standards, regulations, and policies, the leader does not need to continually instruct subordinates about how to do their jobs. Little direction is necessary once the rules and procedures have been learned by subordinates. Rules and policies can serve as a neutralizer as well as a substitute if they are so inflexible that the leader is prevented from making changes in job assignments or procedures to facilitate subordinate effort. Lack of appreciable position power tends to neutralize the use of rewards and punishments by the leader to motivate subordinates. Both supportive and instrumental leader behavior are substantially neutralized when subordinates are geographically dispersed and have only infrequent contact with their leader, as in the case of most field-sales representatives. Finally, the existence of a highly cohesive group of subordinates who work together can serve as a substitute for supportive leadership, since subordinates can obtain any necessary psychological support from each other rather than from the leader.

Since Kerr and Jermier's model was only recently formulated, only a few studies have been conducted to verify its propositions about specific substitutes and neutralizers. Thus it is still too early to assess the validity and utility of the model. Kerr and Jermier suggest the interesting possibility that leaders are sometimes superfluous. Although it seems farfetched to say that a leader cannot have any impact on subordinate performance, it does seem clear that various substitutes and neutralizers may limit leader influence more in some situations than in others. One positive contribution of the model has been to focus the attention of researchers on conditions that serve as substitutes or neutralizers.

Vroom and Yetton's Normative Model of Decision Participation

The importance of using decision procedures that are appropriate for the leader's situation has been recognized for some time. Tannenbaum and Schmidt (1958) noted that a leader's choice of decision procedures reflects forces in the leader, forces in the subordinates, and forces in the situation. Maier (1963) pointed out the need for leaders to consider both the quality requirements of a decision and the likelihood of subordinate acceptance of the decision before choosing a decision procedure. Vroom and Yetton (1973) build upon these earlier approaches but go further in specifying which decision procedures will be most effective in each of several specific kinds of situations.

The Vroom-Yetton model is based on an analysis of how a leader's decision behavior affects decision quality and subordinate acceptance of the decision, both of which are intervening variables affecting subordinate performance. Decision quality refers to the objective aspects of the decision that affect group performance aside from any effects on subordinate motivation. A high-quality decision occurs when the best available alternative is chosen. Decision quality is important when the decision has serious implications for group performance and the alternatives vary greatly in desirability. Decision acceptance is the degree of subordinate commitment to implement the decision effectively. Acceptance is important when the leader is dependent upon subordinates to implement the decision.

Vroom and Yetton identify several decision procedures that can be used to make decisions involving one or more of a leader's subordinates. In effect, these procedures represent a continuum ranging from no participation to maximum subordinate influence over the decision. The decision procedures are defined in Table 7–3.

According to Vroom and Yetton, the relative effectiveness of the different decision procedures depends upon a number of aspects of the decision situation, including the relevant amount of information possessed by leader and subordinates, the likelihood that subordinates will accept an autocratic decision, the likelihood that subordinates will cooperate in trying to make a good decision if allowed to participate, and the amount of disagreement among subordinates with respect to their preferred alternatives. The model provides a set of rules for determining what decision procedures are inappropriate in a given situation because they risk lowering decision quality and/or acceptance.

The decision rules can be summarized briefly in the following manner. An autocratic decision is inappropriate (1) if the decision is important and subordinates possess relevant information lacked by the

TABLE 7-3
Decision procedures

AI.	You solve the problem or make the decision yourself, using information available to you at the time.
AII.	You obtain the necessary information from your subordinates, then decide the solution to the problem yourself. You may or may not tell your subordinates what the problem is in getting the information from them. The role played by your subordinates in making the decision is clearly one of providing the necessary information to you, rather than generating or evaluating alternative solutions.
CI.	You share the problem with the relevant subordinates individually, getting their ideas and suggestions without bringing them together as a group. Then *you* make the decision, which may or may not reflect your subordinates' influence.
CII.	You share the problem with your subordinates as a group, obtaining their collective ideas and suggestions. Then you make the decision, which may or may not reflect your subordinates' influence.
GII.	You share the problem with your subordinates as a group. Together you generate and evaluate alternatives and attempt to reach agreement (consensus) on a solution. Your role is much like that of chairperson. You do not try to influence the group to adopt "your" solution, and you are willing to accept and implement any solution which has the support of the entire group.

Source: Adapted from *Leadership and Decision-Making*, p. 13, by Victor H. Vroom and Philip W. Yetton, by permission of the University of Pittsburgh Press. © 1973 by the University of Pittsburgh Press.

leader or (2) if decision acceptance is important and subordinates are unlikely to accept an autocratic decision (the leader lacks sufficient position or personal power to gain commitment). A group decision or delegation is inappropriate when decision quality is important and subordinates do not share the leader's concern for task goals; these procedures would give too much influence over an important decision to uncooperative or even hostile parties. If the decision quality is not important, but acceptance is critical and unlikely to result from an autocratic decision, then the only appropriate procedure is a group decision. When subordinates are likely to disagree among themselves about the best solution, autocratic procedures and individual consultation are inappropriate because they do not provide the opportunity to resolve differences through discussion and negotiation among subordinates.

Vroom and Yetton have developed decision-process flow charts to simplify the application of their guidelines. One of these charts is shown in Figure 7–5. To use the chart, you start at the left side and ask yourself question *A*. If the answer is no, you then ask yourself question *D*, whereas if the answer to question A is yes, then you proceed to question B. In other words, you proceed through the decision tree in accordance with your answers until a terminal point is reached. The terminal point indicates the decision procedures that are feasible for the situation as described by your answers to the key questions. For situations in which the model prescribes more than one feasible decision procedure, the final choice of a procedure is based on other considerations not directly included in the model, such as time pressure, development of subordinates, and the leader's personal preferences for one procedure over another.

The Vroom-Yetton model appears to be a promising development in leadership theory. The rules for selecting a decision procedure are consistent with prior research on participation. However, as yet only a few studies (e.g., Vroom & Jago, 1978) have attempted to test the model in its entirety, and some further modifications or refinements may prove to be necessary as more evidence is accumulated.

Comparison of situational leadership theories

In comparing the five situational theories of leadership effectiveness, a number of similarities and differences are evident. All of the theories contain situational variables, although the range of situational variables is greater in some theories than in others. Three of the theories have explicit intervening variables to explain how a leader is able to influence subordinate performance or satisfaction, but Fiedler's theory and the Kerr-Jermier theory do not. The Multiple-Linkage Model incorporates a greater variety of intervening variables than does the Vroom-Yetton model (concerned only with decision quality and acceptance) or Path-Goal Theory (concerned only with subordinate expectancies and valences). All but one of the theories is concerned with aspects of leader behavior; Fiedler's theory is concerned with a leader trait (LPC score) rather than behavior. The range of leader behavior is smallest in the Vroom-Yetton model, which is concerned only with decision participation, and greatest in the Multiple-Linkage Model, which is concerned with all the aspects of leader behavior listed in Table 7–2.

The Kerr-Jermier model offers a somewhat different perspective on leadership than the other theories, since it identifies situations in which leaders cannot or need not do anything to influence subordinate performance. In contrast, Path-Goal Theory, the Multiple-Linkage Model, and the Vroom-Yetton theory identify situations in which

FIGURE 7–5

Vroom and Yetton decision-process flowchart

A Does the problem possess a quality requirement?

B Do I have sufficient information to make a high-quality decision?

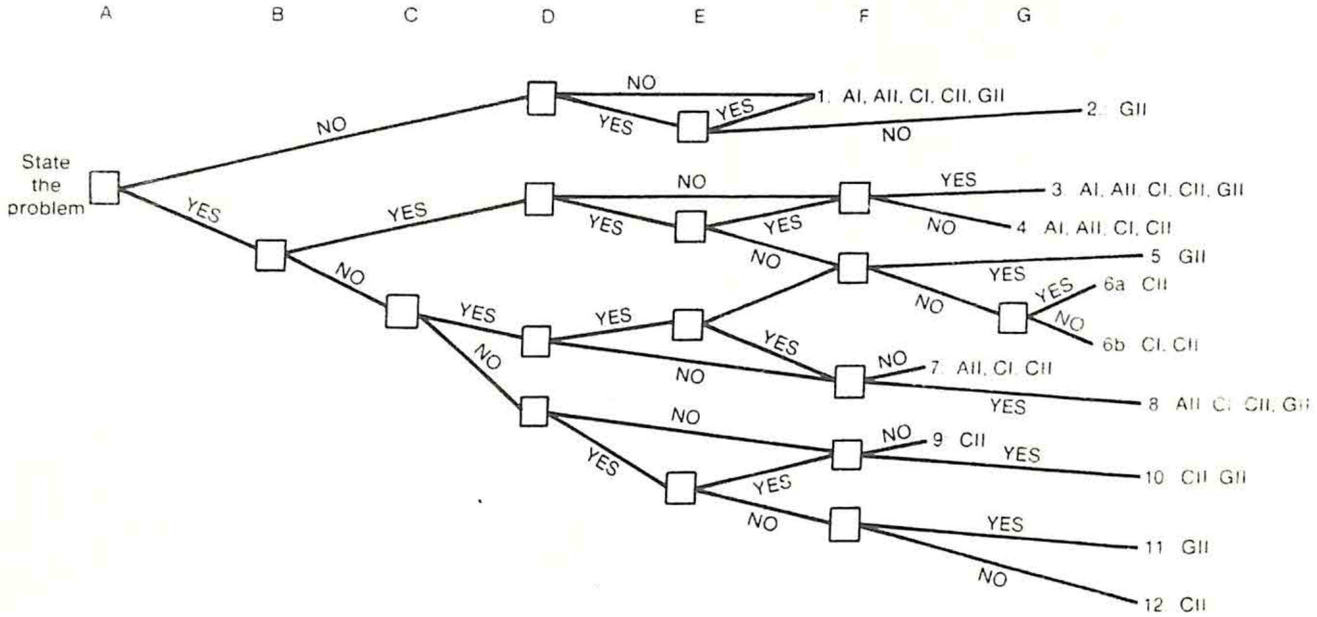
C Is the problem structured?

D Is acceptance of the decision by subordinates important for effective implementation?

E If I were to make the decision by myself, am I reasonably certain that it would be accepted by my subordinates?

F Do subordinates share the organizational goals to be attained in solving this problem?

G Is conflict among subordinates likely in preferred solutions?



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leaders can and should do something to influence subordinate performance. Nevertheless, the four theories appear to be mutually compatible, and they can probably be integrated into a more general theory. However, this integration is unlikely to occur until more research is conducted incorporating a wider range of variables drawn from each of the theories. It is not yet evident whether Fiedler's theory is compatible with the others—due to the absence of comparable intervening and leadership variables. More research is needed to reconcile Fiedler's theory with the others.

SUMMARY

This chapter has reviewed major theories and empirical research findings on the effectiveness of managerial leaders in organizations. Most of the leadership research has been concerned with leader traits, behavior, or influence processes. Despite the narrow focus of these three lines of research, each of them has contributed to our understanding of what makes a leader effective. The trait research found that effective leaders in large organizations have high levels of managerial motivation and an appropriate mix of technical, cognitive, and interpersonal skills for their position. The power research found that leaders develop personal as well as position power and exercise power in a subtle, nonthreatening manner that engenders subordinate commitment. The behavioral research found that effective leaders are able to recognize what type of leadership behavior is appropriate at a given time and are flexible enough to adapt their behavior to changing conditions.

A dominant, underlying assumption of most of the leadership research and theory of the past two decades is the importance of the situation. This assumption is seen in Fiedler's Contingency Model, which postulates that subordinate performance will be higher when there is a proper fit between the leader's LPC score and the characteristics of the situation. Path-Goal Theory identifies some of the situational variables that determine the extent of a leader's influence on subordinate motivation and satisfaction. The Kerr-Jermier model identifies aspects of the situation that make leadership behavior redundant or irrelevant. The Vroom-Yetton model identifies characteristics of the decision situation that determine what decision procedures are appropriate. Finally, Yukl's Multiple-Linkage Model differentiates between a leader's reaction to immediate conditions and longer-term efforts to change the situation itself in a more favorable direction. Each of the situational theories provides some insight into the reasons for leader effectiveness, but all of the theories need further conceptual development and empirical validation.

REVIEW AND DISCUSSION QUESTIONS

1. Define or explain the following key terms: *leadership, managerial motivation, personalized and socialized power orientation, upward power, reciprocal influence process, consideration, initiating structure, participation, reward power, coercive power, legitimate power, expert power, referent power, position power, personal power, LPC score, task structure, situational favorability, decision quality,* and *acceptance.*
2. What was found in the research on the implications of leader traits for leadership effectiveness?
3. Define the five sources of power proposed by French and Raven.
4. How do leaders gain and lose power according to Social Exchange Theory?
5. How is power related to leader effectiveness?
6. Describe the nature of managerial work as revealed by observational research.
7. What are Mintzberg's 10 managerial roles?
8. What is the relationship between leader LPC and effectiveness according to Fiedler?
9. What are some propositions of Path-Goal Theory regarding the effects of leader behavior on subordinate motivation and satisfaction?
10. What are substitutes for leadership? How do they differ from neutralizers?
11. Explain Yukl's Multiple-Linkage Model of Leader Effectiveness.
12. What rules were proposed by Vroom and Yetton to guide leaders in selecting an appropriate decision procedure?
13. Compare and contrast the five situational leadership theories described in this chapter.

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8

Conflict management in organizations

A conflict is a dispute or struggle between two parties that is characterized by overt expression of hostility and/or intentional interference in the goal attainment of the opposing party. Interference can involve either active attempts to block someone's goal attainment or passive resistance, such as withholding necessary supplies and information from the other party (Schmidt & Kochan, 1972). Conflicts can occur regardless of whether two parties have goals that are incompatible. That is, conflict can occur even when the goals of two parties are compatible and the consequences will only be detrimental to everybody involved. This kind of conflict has been labeled a "pseudoconflict" to distinguish it from conflicts in which real differences exist between the goals or values of the parties (Rhenman, Stromberg, & Westerlund, 1970).

Interpersonal and intergroup conflict occur to some extent in all organizations and are a natural part of social relationships. Conflict can occur between individuals in the same group, between a person and the boss, between two or more departments in an organization, between line and staff personnel, and between a labor union and management. In this chapter we will examine the consequences of conflict for organizations, the antecedent conditions leading to conflict, typical reactions to conflict by the parties directly involved, types of intervention by third parties, and the implications for effective management of conflict.

CONSEQUENCES OF CONFLICT

Until recently, behavioral scientists have assumed that conflict is an abnormal phenomenon with only negative consequences. Thus it is not surprising that conflict has usually been regarded as an evil to be eliminated whenever possible. In fact, conflict can have both good and bad consequences, and the objective should be to manage it in such a way that the benefits are retained and the adverse effects minimized (Thomas, 1976).

The negative effects of conflict are primarily due to its disruption of communication, cohesiveness, and cooperation. When members of an organization have interdependent activities, performance of these activities will suffer if there is a lack of cooperation and refusal to share information due to chronic conflict. The productive activity of each party will be further reduced by diversion of time and energy to "winning" conflicts. Individuals engaged in conflicts typically experience stress, frustration, and anxiety; these, in turn, reduce job satisfaction, impair concentration on the task, create apathy, and encourage withdrawal in the form of absenteeism or turnover. When conflict is excessive, the organization may be torn apart, or it may be immobilized, unable to take unified action in a hostile environment.

On the other hand, without some conflict an organization would be unlikely to maintain its vigor and successfully adapt to a changing environment. Adaptation requires changes in procedures and priorities, and perhaps even in organization goals. Such changes create inconvenience and involve a redistribution of power and status. Consequently, major changes are usually avoided or resisted by many members of an organization. Unless there is overt conflict, changes are not likely to occur rapidly enough to ensure successful adaptation. In addition, decisions are less likely to reflect "stagnant thinking"or biased perception if they are forged from disagreement, and conflict can be a major source of motivation to develop innovative methods.

ANTECEDENT CAUSES OF CONFLICT

Conflicts are created by a variety of antecedent conditions (Robbins, 1974; Walton & Dutton, 1969). Six major categories of antecedent conditions include: (1) competition for resources, (2) task interdependence, (3) jurisdictional ambiguity, (4) status problems, (5) communication barriers, and (6) individual traits. Many conflicts involve more than one of these antecedent conditions, and the categories are not always mutually exclusive.

Competition for resources

One major source of conflict in organizations is competition for scarce resources—such as budget funds, space, supplies, personnel, and supporting services (e.g., typing, duplicating, data processing, maintenance). The scarcer the supply of resources relative to the amount needed by the rival parties, and the more important the resources are to them, the greater the likelihood that conflict will develop and the more intense it will be. Cases of conflict resulting from competition over scarce resources can be found in most organizations. One example is a conflict between two sales departments over who could get priority in the scheduling of their product for production. "Top sales officials wasted hours personally exerting their authority in production offices to get schedule deviations" (Seiler, 1963, p. 126). Each time one sales department was able to get the schedule changed, problems were created for production personnel as well as for the other sales department.

Task interdependence

When two individuals or two groups are dependent upon each other in some way for the successful performance of their tasks, conflict is likely to occur if the two parties have different goals or priorities. Task interdependence may be either one way or mutual, and the dependency may involve provision of supplies, information, assistance, or direction, as well as the necessity of coordinating the activities of the two parties. The greater the difference in goal orientation for the parties, the more likely it is that conflict will develop. This kind of conflict is commonly found between interdependent departments that are highly specialized, such as research and production or sales and production. Strauss (1962, p. 164) provides an example from a study of purchasing agents:

> Engineers write up the specification for the products that the agents buy. If the specifications are too tight, or what is worst, if they call for one brand only, agents have little or no freedom to choose among suppliers, thus reducing their social status internally and their economic bargaining power externally. Yet engineers find it much easier to write down a well-known brand name than to draw up a lengthy functional specification which lists all the characteristics of the desired item. Disagreements also arise because, by training, engineers look first for quality and reliability and thus, agents charge, are indifferent to low cost and quick delivery, qualities of primary interest to purchasing.

Jurisdictional ambiguity

Conflict is likely when jurisdictional boundaries are unclear due to overlapping responsibility or gaps in responsibility, and one party attempts to assume more control over desirable activities or to relinquish its part in the performance of undesirable activities. Conflicts also develop when one party tries to take the full credit for success or to avoid the blame for failure in joint activities. Dutton and Walton (1965) describe a conflict between sales and production departments that was due in part to a jurisdictional disagreement. Each department tried to remain free of obligations and to establish jurisdictional limitations on the activities of the other department. When sales wanted new product designs, production resisted and found lots of reasons for not trying them. When production attempted to avoid producing an order by claiming that they did not have the necessary materials, sales took the initiative in locating and ordering the materials. Production reacted by accusing sales of violating established procedures and overstepping its jurisdiction. As a result of the conflicts that repeatedly occurred, few new designs were developed, profitable orders were lost, crews were dismissed for lack of work, orders were not filled on time, and defective orders were shipped to customers.

Status problems

In Chapter 6 we saw how inconsistency between work-flow patterns and the status hierarchy created conflict between order runners and cooks in a restaurant. The same kind of conflict can also occur between two departments in an organization. Seiler (1963) describes what happened in one company where a low-status production engineering department initiated design and schedule changes for a production department that had equal or higher status. The production personnel resented being told what to do and how to do it by production engineers whose skills were no greater than their own. A great deal of time was wasted by the production managers searching for errors in engineering's drawings and preparing elaborate criticisms of these errors to embarrass the production engineers.

Conflict is also likely when one department tries to improve its status and other departments perceive this to be a threat to their position in the status hierarchy. In research on line-staff conflict, Dalton (1950) observed that staff personnel attempted to prove their worth by developing new production techniques. The line managers resisted applying these new techniques because they regarded their authority over production as a sacred right, and they resented the implication that they needed any help from the younger, less experienced staff personnel. The combination of status and jurisdictional issues created serious frictions, and the potential savings from some superior new techniques were never attained.

A final type of status conflict is caused by perceived inequities in rewards, job assignments, working conditions, and status symbols. If an individual or department believes that they are receiving fewer benefits or opportunities than they deserve, frustration and resentment can develop into conflict with the administrator responsible for the allocation of benefits, or with the persons who are receiving superior benefits.

Communication barriers

In Chapter 4 we saw that there are many barriers to accurate communication between persons. Insufficient communication can contribute to the development of pseudo-conflict by preventing agreement between two parties whose positions are essentially compatible. The absence of adequate channels of communication can impede attempts to achieve coordination between parties with interdependent tasks. Semantic difficulties and selective interpretation of information can perpetuate misconceptions and encourage mutual distrust. For example, the animosity between a county welfare department and several other county agencies was found to be directly attributable to their ignorance about the welfare department's duties and contributions (Robbins, 1974, p. 37).

On the other hand, there are situations in which too much open communication creates conflict that would not otherwise have occurred. Perfect knowledge can reveal inequities or value differences between parties, thereby stirring up resentment and hostility. Walton, Dutton, and Cafferty (1969) found that conflict between departments in an organization was greater when the departments possessed substantial knowledge about each other's activities than when they did not.

Individual traits

The likelihood of conflict is partially determined by the personality traits of the parties. In a review of bargaining research, Walton and McKersie (1965) concluded that conflict behavior was more likely when the parties were high in dogmatism and authoritarianism and low in self-esteem. Consider for example two dogmatic individuals who disagree. Each person is inflexible and unable to recognize any intermediate position upon which agreement might be possible.

Needs and values can also contribute to the development of conflict. For example, employees with a strong need for independence are likely to have a conflict with their boss if he or she is a very authoritarian individual who supervises closely and allows little autonomy. When there is competition among organization members, conflict is more likely to develop if the competitors are highly ambitious and have strong needs that will be satisfied by "winning."

Finally, there is more likely to be a conflict between persons with different social, political, moral, or religious values than between persons with the same values.

DYNAMICS OF WIN-LOSE CONFLICT BETWEEN GROUPS

The most severe conflicts between groups occur when there is a "win-lose" orientation. That is, each group believes that only one group can "win" and they are determined to be the victor. Most conflicts are not inherently of the win-lose type, but they may become so if the parties regard any substantial concession as equivalent to defeat. The dynamics of win-lose conflicts have been studied extensively in a laboratory setting by behavioral scientists. Much of this research was conducted by Blake and Mouton (1961, 1962, 1964). Their usual approach was to form groups composed of managers who were participating in a management training workshop. After 10 to 18 hours of group activities that developed group identification and cohesiveness, each group was asked to prepare a written proposal for the solution of a hypothetical problem. The proposals were circulated for examination by competing groups. Then a representative was chosen in each group, and the representatives were instructed to decide which proposal was the best one.

Many studies of this type have been conducted, and they reveal a predictable pattern of events. Group members nearly always regard their proposal to be superior to the proposals made by competing groups. This bias occurs even for members who do not participate in developing their group's proposal (Ferguson & Kelly, 1964). Even though competing proposals are examined, group members have more knowledge about their own proposal than about the other proposals. Similarities between own and other proposals are overlooked, and differences are exaggerated. Each group tends to claim as its own some points that are actually contained in competing proposals (Blake & Mouton, 1961).

When the representatives meet, each supports his/her own proposal and attacks the competing proposals. As members observe the debate between representatives, they listen closely to their own representative, but they tend to ignore or criticize speakers from other groups. If a representative shows signs of giving in, he or she is pressured by constituents to remain firm in support of their proposal. Thus invariably the representatives fail to reach an agreement about which proposal is the best one (Blake & Mouton, 1961).

Other studies have identified a typical pattern of events for a prolonged win-lose conflict between two groups (Sherif, 1966). After a number of competitive encounters, each group begins to see the other benefits or opportunities than they deserve, frustration and resentment can develop into conflict with the administrator responsible for the allocation of benefits, or with the persons who are receiving superior benefits.

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Other studies have identified a typical pattern of events for a prolonged win-lose conflict between two groups (Sherif, 1966). After a number of competitive encounters, each group begins to see the other group as an "enemy." Members of the opposing group are perceived in terms of a negative stereotype. For example, in a labor-management conflict, union leaders believed that management was underhanded and deceitful, was concerned only with production, was desirous of gaining control over all aspects of the workers' lives, and was trying to destroy the union. Management perceived the union leaders as a legalistic and rigid minority clique that did not represent the workers, that wanted to interfere in management decisions, but was not really interested in management's problems (Blake, Mouton, & Sloma, 1965). Such stereotypes are usually gross exaggerations that do not provide an accurate description of the majority of members in the opposing group.

When negative stereotypes develop, the actions of the other group are interpreted in accordance with whatever evil intentions are attributed to it. For example, if management subcontracts more work to other firms, union leaders may perceive this action as a plan to weaken the union. If there is considerable hostility and distrust, even conciliatory actions by the other side may be rejected as a "trick to put us off guard."

These findings from studies in the laboratory and with natural groups point out some of the reasons win-lose conflicts are often so severe. There is little incentive to seek a compromise when each party believes it is completely right and the other party is wrong as well as untrustworthy. Win-lose conflicts are usually resolved on the basis of the relative power of the two parties or by a third party who arbitrates a settlement.

REACTIONS TO CONFLICT

There are a variety of ways that the parties involved in a conflict may react to it. We will examine each of the major types of conflict reactions that have been described by various behavioral scientists (Ackelsberg & Yukl, 1979; Blake & Mouton, 1964; Pruitt, 1972; Walton & McKersie, 1965). Some reactions, such as withdrawal and smoothing, are attempts to avoid a confrontation over conflicting interests or values. Other reactions, such as persuasion, forcing, bargaining, and integrative problem-solving, are forms of confrontation with different consequences for resolution of a conflict.

Accommodation

When one party yields immediately to the requests or demands of the other party, this response is called accommodation, capitulation, or appeasement. To be consistent with the definition of conflict stated earlier, there must be some protest or expression of hostility by the yielding party before or during capitulation. Accommodation is most likely when the issue is relatively unimportant to a party in comparison with maintaining a harmonious relationship. Capitulation is also likely when the other party has an overwhelming power advantage and the yielding party sees no opportunity for avoidance or compromise. A danger posed by accommodation is that the "winning" party will see the appeaser as weak and will subsequently press for additional concessions. Accommodation in response to forcing can become a self-reinforcing pattern. Mudler (1976) found that in successive interactions following accommodation, the dominant party became more oppressive, and the submissive party became less resistant.

Withdrawal and avoidance

One reaction to conflict is for either or both parties to withdraw from the relationship. For example, if two individuals are having a conflict, one party may leave the organization, or they may simply avoid interacting with each other. Mutual avoidance can be an effective means of coping with conflict if the two parties have no need to interact in performing their organizational roles. However, if they have interdependent task roles that require coordination, mutual avoidance will seriously impair their performance.

Smoothing and conciliation tactics

Another reaction to conflict is for the parties to ignore their differences and attempt to "smooth over" the conflict. There are a number of conciliatory actions that a party can take to improve relations with the other side without actually confronting substantive issues. Some of the major conciliation tactics include the following:

1. Express a desire for cooperation and harmonious relations with the other party.
2. Offer compliments and statements of respect for the accomplishments of the other party.
3. Avoid making accusations, threats, or disparaging comments to the other party.
4. Reinforce conciliatory acts and statements by the other party by praising and reciprocating them.
5. Emphasize the common characteristics and mutual interests of both parties.
6. Make specific offers of assistance to the other party.
7. Agree not to bring up differences in values or beliefs.

Smoothing may be an effective approach for avoiding an escalation of open hostility and the disruption of work relationships, as long as the source of the conflict is not directly related to task performance. For example, if two persons have different political beliefs, religious convictions, or moral values and they get into frequent arguments about these differences, they can simply agree not to discuss them. However, like withdrawal, smoothing will not be effective if used to continually avoid confronting disagreements involving problems of coordination and joint performance. Such problems are likely to grow worse rather than disappear if they are ignored.

Persuasion

One approach for confronting conflict is an attempt to persuade the other party to change his/her position. Some common types of persuasive tactics include the following:

1. Provide factual evidence that supports your position.
2. Discredit information supporting the opponent's position and point out errors in his/her logic.
3. Point out possible costs and disadvantages of the other party's proposals that may have been overlooked (e.g., "It may come back to haunt you").
4. Point out how your proposals will benefit the other party.
5. Show how your proposals are consistent with prior precedent, prevailing norms, or accepted standards of justice and equity.

The success of persuasion depends on the credibility of the person making the persuasive appeal and the willingness of the other party to consider factual information relevant to the disagreement. If both parties are firmly committed to incompatible goals, persuasive appeals are likely to be either ignored or discounted. A persuasive appeal has a greater chance of success if the parties have compatible goals but simply disagree about the best way to attain them. The most effective persuasive tactics are probably those that do not threaten the ego or status of the other party. A direct attack on the other party's position is less likely to succeed than an indirect approach, such as presenting facts that will lead the other party to draw the desired conclusions.

Forcing and pressure tactics

Another reaction to conflict is the use of pressure tactics to force the other party to give in. When one party has formal authority over the other's activities in the organization, as in the case of a boss and subordinates, forcing is often employed by the boss to resolve a disagreement. Attempts to force the other party to make concessions can also be used in conflicts in which no authority differential is present, such as in conflicts between two departments or between a union and management. The major types of pressure tactics include: (1) threats, (2) punishment sequences, and (3) positional commitments.

A threat is the explicit or implicit warning that an action detrimental to the other party will be carried out unless they comply with certain demands. For example, the union may threaten a strike or slowdown if management does not make significant wage increases. Threats will be ignored unless the other party perceives them to be credible. Credibility is dependent upon both the capacity and the willingness of the party making the threat to carry it out. Thus the parties may try to demonstrate their capacity and determination to take aggressive actions. For example, a union may publicize the fact that it has an adequate strike fund to support workers in the event of a strike, and members may be asked to authorize a strike even before negotiations begin in order to convince management that a strike will occur if a settlement cannot be reached.

A punishment sequence is one method for demonstrating to the other party that aggressive actions can be taken to punish them if necessary. A small amount of a party's coercive power is applied to give the other party "a taste of what will happen" if they do not meet certain demands. Another variation of this approach is to apply the full measure of punishment with the condition that it will be ended as soon as certain conditions are met by the other party. For example, an organization may suspend rebellious members until they agree to perform their duties as expected.

Threats and punishment sequences will not necessarily have the desired effect. Although some persons can be influenced by them, other persons refuse to be intimidated. When both parties have threat capacity, use of threats by one party is likely to be met with counter threats by the other party. The same is true of punishment sequences. Such exchanges can easily lead to an escalating spiral of aggressive acts.

A positional commitment is a statement by one party that they will not concede further and that the other party must give in or face the consequences of a deadlock. Examples of this approach are "non-negotiable demands" and "take it or leave it" final offers. A positional commitment is most likely to succeed if a party can show that it is impossible to make any further concessions without losing more than would be gained from a settlement. However, a positional commitment will not succeed if the settlement that is demanded cannot satisfy the other party's minimal aspirations. Thus use of positional commitments requires estimating how far the other party is willing to concede and then demanding just that much and no more.

Since one party's capacity to force a settlement or pressure a favorable compromise depends on their power relative to that of the other party, one common tactic in organizational conflicts is coalition formation. That is, a party will seek an ally that has enough power or influence to ensure a decisive advantage over the opposing party. An illustration of this tactic is provided by a statement from one of the purchasing agents in a study by Strauss (1962, p. 177): "Engineering says we can't use these parts. But I've asked manufacturing to test a sample under actual operating conditions—they are easy to use. Even if engineering won't accept manufacturing's data, I can go to the boss with manufacturing backing me. On something like this, manufacturing is tremendously powerful."

Forcing is seldom the best way to resolve a conflict (Burke, 1970), although it is more effective than avoiding a conflict that involves interdependent activities of the parties (Lawrence & Lorsch, 1967, 1969). Forcing often creates considerable resentment in the weaker party, who is likely to respond to forcing with passive resistance rather than enthusiastic compliance. The weaker party is often able to sabotage a plan by doing only what is specifically reqired and showing no initiative in dealing with unanticipated problems. Forcing can also lead to withdrawal by the weaker party in the form of increased absenteeism or turnover.

Bargaining and exchange-oriented tactics

Bargaining can be defined as the process of exchanging concessions until a compromise is reached. Bargaining can be used to resolve conflicts in which there exists at least one mutually acceptable settlement. In other words, there has to be a potential settlement that provides each party with enough benefits to satisfy minimal aspirations. Otherwise, bargaining will end in a deadlock without a settlement.

The goal of each party in bargaining is usually to obtain the maximum benefits possible under the circumstances, without concern for the benefits received by the other party. Experienced bargainers usually begin the bargaining by demanding more than they really expect to get. Both sides realize that some concessions will be necessary in order to avoid a deadlock. However, the necessity of making concessions presents a dilemma when each party is trying to avoid any sign of weakness. If a party concedes too easily, it is likely to appear weak, and the other party will be encouraged to demand more and offer less (Yukl, 1974). Pruitt (1972) provides some examples of exchange-oriented tactics that can be used in an attempt to cope with this dilemma:

1. Make a small unilateral concession and state that no further concessions will be made unless the other party concedes.
2. Suggest a specific exchange of concessions that would be acceptable.
3. Informally signal a willingness to make a concession later if the other party makes one now.
4. Propose that a mediator be obtained to help find an acceptable compromise.

Exchange-oriented tactics often involve "tacit communication" (Pruitt, 1971). Tacit communication occurs when one party signals a willingness to be flexible in exchanging concessions without actually making an explicit offer or promise. Tacit communication of this type encourages the other party to make a concession by implicitly promising that it will be reciprocated. There is little danger of appearing weak, because a tacit proposal can later be denied if it fails to elicit a positive response from the other party. Tacit proposals provide an additional advantage when bargaining is carried out by representatives of groups, because it is easier for representatives to avoid appearing weak to their constituents. However, since tacit communication is usually intentionally ambiguous, it can easily be overlooked or misunderstood by the other party.

Bargaining can be an effective method for resolving certain kinds of conflicts. However, as we have seen, there is no certainty that bargaining will result in an agreement. Bargaining is not likely to be used for resolving a win-lose conflict in which the two parties do not believe that a mutually acceptable compromise is possible. Nor is bargaining likely to be used if the parties have no way to ensure that an agreement will be observed and they do not trust each other to do so. Even when bargaining is feasible, it sometimes results in a compromise agreement that fails to deal with the underlying problem in a rational manner and is not in the best long-term interest of the parties. For example, two departments in an organization were competing for control over a new production process. The conflict was resolved by an agreement to divide up the new machines and personnel equally between the two departments. The cost of running duplicate operations eventually became excessive, and the departments had to continually compete for the available work. The arrangement turned out to be unsatisfactory for both parties and unprofitable for the company.

Integrative problem solving

Integrative problem solving is an attempt to find a settlement that reconciles, or integrates, the needs of both parties. The conflict is defined as a mutual problem, and the parties cooperate in searching for a solution that is satisfactory to both of them. During integrative problem solving, there is an open and honest exchange of information about facts, needs and feelings. Each party tries to understand the conflict from the other party's point of view and to discover what needs of the other party must be satisfied by any settlement. An open exchange of this sort is not possible unless the two parties trust each other. A party is unlikely to reveal its true preferences and minimal needs if it expects the other party to take advantage of this information and to provide inaccurate information in return. Thus a precondition for integrative problem solving is a minimal level of trust. Some of the conciliatory tactics discussed earlier are helpful for creating a climate of trust favorable to integrative problem solving.

A number of integrative tactics and procedures have been proposed (Blake & Mouton, 1962, 1964; Walton & McKersie, 1965):

1. Definition of the problem should be a joint effort, so that it is based on "shared fact finding" rather than on the biased perception of each party. Ample time should be provided so that the problem can be explored in the absence of excessive pressure for a quick settlement (Yukl, Malone, Hayslip, & Pamin, 1976).
2. Problems should be stated in terms of specifics rather than of abstract principles, and points of initial agreement in the goals and beliefs of the parties should be identified along with differences.
3. The parties should work together in developing alternative solutions. If this is not feasible, each party should present a range of acceptable solutions rather than promoting the solution that is best for them while ignoring or concealing other possibilities.
4. When there is a solution that maximizes joint benefits but favors one party, some way should be found to provide special benefits to the other party to make the solution equitable.
5. All agreements on separate issues should be considered tentative until every issue is dealt with, since some issues are probably interrelated and cannot be settled independently in an optimal manner.

It should be emphasized that the success of integrative problem solving is not ensured by the use of any particular procedures. Integrative problem solving is a certain orientation rather than a set of tactics, and its success depends on the mutual cooperation and creativity of the parties (Walton & McKersie, 1965).

Most of the procedures used for integrative problem solving are incompatible with the kinds of tactics employed in forcing or bargaining (Walton & McKersie, 1965). Positional commitments and specific hard demands are inconsistent with the flexible, exploratory approach needed for integrative problem solving. Threats and punitive actions are inconsistent with creation of an atmosphere of trust and cooperation. The kind of deception and bluffing commonly employed in bargaining is inconsistent with an open disclosure of needs and preferences and the sharing of factual information. Since it is usually not feasible to use forcing and bargaining tactics at the same time as integrative problem solving, the parties should determine what general approach is appropriate for the given situation, rather than attempting to use a mix of inconsistent tactics.

The effectiveness of integrative problem solving for resolving a conflict depends ultimately upon the nature of the conflict. This approach will be most successful when there exists a solution that would be optimally beneficial to both parties. An example of successful integrative bargaining is provided by Walton and McKersie (1965, p. 130):

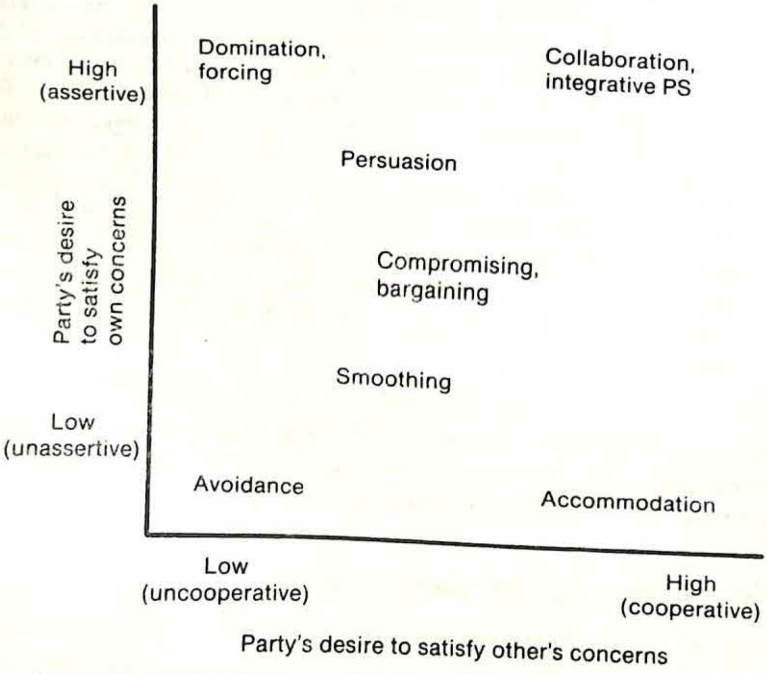
> In the closing down of the McCormick Works of International Harvester, the following issue arose: As soon as the company announced the shutdown of the plant, the union wanted employees released so that they could apply for work at other International Harvester plants. For its part, the company desired to keep many of these employees since they were necessary in the phasing-out operation. The solution reached established a "pegged" seniority date at other plants, if at any point after the company announced its plans to shut down the plant a job opened at other plants which the given employee could fill. Thus, the employee continued on in the plant being terminated, all the time acquiring seniority at the plant to which he would be eventually transferred.

Another example of integrative problem solving is the practice called productivity bargaining. In return for a large wage increase, the union cooperates with management in revising work rules and procedures to reduce costs and improve productivity.

Two-dimensional model of conflict responses

A party's choice among the seven types of conflict responses depends in part on two underlying motives: (1) desire to satisfy one's own concerns and (2) desire to satisfy the other party's concerns (Thomas, 1976). These two motives are independent; a party may be high, low, or intermediate on one motive regardless of the other motive. The mix of motives likely to be associated with each response mode is shown in Figure 8–1. As depicted, forcing (*domination* in Thomas' terms) reflects a desire to satisfy only one's own concerns, whereas accommodation reflects a desire to satisfy only the other party's concerns. Avoidance or withdrawal reflects little desire to satisfy either party's competing concerns. Integrative problem solving (*collaboration* in Thomas' terms) reflects a strong desire to satisfy both party's concerns. Compromising or bargaining represents a moderate desire to satisfy both parties' concerns. Persuasion is intermediate between forcing and bargaining. The primary motive is to satisfy one's own concerns, but the party making a persuasive appeal tries to show how acceptance of his/her proposal will also benefit the other party, or at least not be harmful to the other party. Smoothing reflects only a relatively weak desire to satisfy either party's competing concerns. The primary motive for this response is to maintain or establish a harmonious relationship, and attention is focused on mutual interests rather than on competing interests. Resolution of differences is put off until a future time.

FIGURE 8–1
A two-dimensional model of conflict response modes



Source: Adapted from K. Thomas, "Conflict and Conflict Management," in *Handbook of Industrial and Organizational Psychology*, ed. M. D. Dunnette (Chicago: Rand McNally, 1976).

THIRD-PARTY INTERVENTIONS

When the parties involved in a conflict are unwilling to negotiate or have reached a deadlock in negotiations, a third party may become involved to help them resolve the conflict. The third party may be invited to intervene by the opposing parties or may act on its own initiative. The major types of third party intervention are (1) arbitration, (2) mediation, and (3) interparty process consultation. Each type of intervention has certain distinctive features and is more appropriately used for some kinds of conflict situations than for others.

Arbitration

Arbitration is a procedure whereby a third party hears both sides of a conflict and acts as a judge in determining a binding settlement. Even though the party who is not favored by an arbitration ruling may be dissatisfied, arbitration is an orderly way of settling disputes, and it is usually preferable to mutual aggression and disruptive practices, such as unauthorized strikes by employees (Stagner & Rosen, 1965). An arbitrator will be most effective in finding a just settlement if he/she is well informed about the issues and practices over which the dispute has arisen and is therefore not solely dependent on the biased arguments presented by the two opposing parties.

Arbitration is commonly used to settle disputes between two individuals or two departments in an organization. The arbitrator in this case is usually the common superior of the opposing parties, since the arbitrator has the authority to make a ruling and require its observance. Arbitration by a neutral third party may be used to settle union-management conflicts over grievances or interpretation of contract terms. Large corporations often have a full-time arbitrator whose salary and expenses are shared jointly by management and the union (Stagner & Rosen, 1965). The arbitrator will only be acceptable to both management and the union as long as they perceive him or her to be impartial and objective.

Mediation

Another common form of third-party intervention is mediation. A mediator from the federal or state mediation service is often invited to intervene by management and the union when they are not able to reach an agreement on a new contract. Unlike an arbitrator, a mediator has no direct authority over the opposing parties, and the recommendations are not binding. Thus the mediator's success will depend on persuasiveness, prestige, and understanding of the two opposing positions (Stagner & Rosen, 1965).

One potential contribution of a mediator to the resolution of conflict is to reestablish communication that has broken down. For example, if the two parties refuse to negotiate directly with each other, the mediator can act as a go-between who transmits offers and messages. Or if prior negotiations have been broken off, a mediator can attempt to persuade the parties to resume talks. Mediators also facilitate the exchange of specific concessions. A mediator usually tries to find out what one party expects in return for a certain concession and can then propose this concession exchange to the other party. Since the concession exchange is suggested by the mediator rather than by one of the parties, potential compromises can be tested without either party appearing to have weakened. If a deadlock has resulted from an unsuccessful positional commitment by one party, by suggesting the necessity for mutual concessions, the mediator can help the party "retreat" from this commitment without losing face.

A mediator can also facilitate integrative problem solving. One contribution to problem solving consists of helping to collect and clarify factual information when the facts are ambiguous and the parties disagree about them. Another contribution consists of helping each party to better understand its own preferences with regard to a settlement. Research suggests that conflict resolution can be inhibited by normal errors and limitations in human judgmental processes when the conflict involves many issues with qualitatively different payoffs. Balke, Hammond, and Meyer (1973) conducted a study with union and management negotiators who had settled a new contract only five months earlier. The negotiators were asked to individually judge the acceptability of sample contracts representing various package settlements for four of the original issues (i.e., duration of contract, percentage wage increase, number and use of machine operators, number of strikers to be recalled).

Analysis of the judgments revealed that each negotiator had a poor understanding of his own preferences for alternative settlements and his weighting of the relative importance of the issues. Moreover, there was some lack of agreement among members of each negotiating team. By helping individuals to discover their preferences, and by helping teams of negotiators to clarify their joint position, a mediator can increase the likelihood that a mutually acceptable settlement will be discovered during bargaining or integrative problem solving. Balke, Hammond, and Meyer (1973) have developed a procedure to improve a party's understanding of their own position and to facilitate the accurate communication of this position to the other party.

Finally, a mediator who is able to obtain accurate information about each party's preferences and needs may be able to discover an integrative solution that was not obvious to the opposing parties. The problem-solving efforts of a mediator can be especially valuable in situations in which the two parties will give the mediator information that they are unwilling to openly disclose to each other. Pruitt (1975) has described how the mayor of a city successfully mediated a strike by bus drivers. The drivers were asking for higher wages and a two-year contract instead of the normal one-year contract. The mediator learned that the bus drivers were primarily concerned about getting a two-year contract, whereas the bus company was primarily concerned about the money, especially in the first year. The mediator proposed a two-year contract with a small wage increase in the first year and a larger increase in the second year, and both parties accepted this settlement.

Although the intervention of a mediator improves the prospects of a settlement, there are many instances in which mediation fails. The effectiveness of mediation depends in part on the talents and traits of the individual mediator. Some mediators are clearly more successful than others. As yet, however, there has been little research to determine the characteristics of effective mediators (Rehmus, 1965).

Interparty process consultation

Interparty process consultation is a relatively new form of third-party intervention, and it differs from arbitration and mediation in several respects (Fisher, 1972). The objective of the "process consultant" is to improve the relationship between the two parties and to develop their capacity to effectively resolve conflicts by themselves in the future. The process consultant has no power to arbitrate a settlement and usually does not attempt to mediate any substantive issues that exist. Instead, the process consultant uses various techniques designed to increase each party's awareness of distorted perceptions and dysfunctional behavior that interferes with conflict resolution. In addition, the process consultant guides the parties toward use of mutual fact-finding and problem solving and may provide special training to develop their problem-solving skills.

Blake, Mouton, and Sloma (1965) provide a good example of the kind of procedure used by a process consultant to reduce intergroup hostility and distorted perception. After the consultants obtained the approval of the two groups (union leaders and top management) to conduct the intervention, a short meeting was held to inform the groups about the objectives of the intervention procedures. Then each group met separately to prepare two written descriptions: (1) how they perceived themselves and (2) how they perceived the other group. These descriptions included goals, intentions, attitudes, and behavior relevant to the relationship between the groups. The groups then exchanged descriptions and met separately to study the substantial discrepancy between their self-image and the image of them provided by the other group and between their image of the other group and its own self-image. After a brief joint meeting to clarify the images, each group met separately to discuss the misperceptions that were revealed and to diagnose the underlying reasons for hostility in the relationship. Then the groups met together to exchange and discuss their diagnoses. Both groups were quite open about their feelings and attitudes at this point, and each group was willing to listen carefully to what the other group had to say. The groups identified issues that needed to be resolved to improve their relationship and planned what future actions should be taken to deal with these issues.

Blake and Mouton (1962) provided an example of one kind of procedure used by a process consultant to guide the parties in the use of problem solving. Management and union negotiators were first asked to separately prepare a written analysis of the similarities in their positions as well as the differences. Next, each party presented a detailed explanation of their position in terms of underlying problems they faced and their needs. Then separate committees composed of three management negotiators and three union negotiators were established for each major problem area. The job of each committee was to collect facts and propose a series of preferred solutions. Although win-lose conflict between management and union representatives quickly emerged in each committee as they assumed polarized positions, with the aid of the process consultants the committees were gradually able to become fact-oriented and to avoid the win-lose trap. By the time three weeks had elapsed, the members of each committee were able to agree on a set of recommendations. These recommendations broke what had been a hopeless deadlock between management and the union and paved the way for an eventual settlement.

The techniques used by a process consultant for intervening in a conflict between two individuals are not very different from the procedures used for conflict between groups. The following are some examples:

1. Regulate the location, timing, and duration of confrontations to ensure that there is mutual positive motivation to resolve the conflict and that the confrontation occurs in an atmosphere of informality and impartiality.
2. Encourage both parties to diagnose the reasons for the conflict, and suggest behavioral science concepts and theories that may explain why the parties have been acting in a certain manner.
3. Encourage use of problem-solving procedures, and discourage nonproductive reactions, such as threats, blaming, and derogatory comments.

4. Facilitate communication accuracy by summarizing each party's position or asking each party to repeat the other party's last statement before responding to it. Understanding of the other party's position can also be improved by having a debate in which each party presents the opposing position rather than his own (role reversal).

The reader can find a more extensive discussion of interpersonal peacemaking techniques in Walton (1969).

Process consultation interventions are most likely to be effective in facilitating resolution of conflicts where there is considerable hostility and distrust due to inaccurate perception of the other party's objectives and intentions. Several successful interventions by process consultants in union-management conflicts are described by Blake and Mouton (1962) and Blake, Shepard, and Mouton (1964). Walton (1969) describes several cases in which process consultants were successful in reducing conflict between individual managers in organizations. Such interventions are not always successful, but the approach is quite new and it is still being developed and improved.

MANAGING CONFLICT IN ORGANIZATIONS

Successful management of conflict means maintaining a level of conflict that is optimal for organization survival and effectiveness. The level of conflict can be raised or lowered by altering the antecedent conditions leading to conflict. Conflict management also involves regulating the way conflicts are handled by the involved parties and by third parties. There are several kinds of interventions that may be used for managing conflict. Most of the approaches are mutually compatible and can be used together in various combinations depending on the nature of the conflict. The likelihood of successful management of conflict is increased when multiple interventions are used (Brown, 1983). The remainder of this chapter provides a brief review of interventions useful for dealing with lateral conflict between peers or between departments. For a more detailed treatment of conflict management, including other forms of conflict (e.g., hierarchical conflict between persons at different levels of authority or between labor and management), the reader is referred to the excellent book by Brown (1983).

Arbitrate directly

Lateral conflict is typically settled by the parties themselves. When the parties are unable to resolve conflicts in a constructive manner, the manager who is the common superior of both parties usually intervenes. If the conflict is primarily interpersonal rather than work related, the common superior can counsel both parties to be more tolerant and attempt to smooth over their dispute. If the conflict is primarily work related rather than interpersonal, the manager can arbitrate it. However, there are limits to this approach, since the common superior will become overloaded if subordinates are continually asking to have their disputes settled. If the common superior is someone two or more levels higher in the authority hierarchy, too many other responsibilities may take priority over arbitrating low-level conflicts.

Establish rules and procedures

If the conflict involves a recurring issue, such as competition over use of equipment and support services, the common superior can establish rules and guidelines to avoid future conflicts or to settle them on an objective basis. For example, support services may be provided on a first come, first served basis, or on the basis of a system of established priorities, rather than being determined by an influence struggle among users. However, rigid rules and decision criteria are not appropriate for some situations, such as when many day-to-day decisions of a nonroutine nature must be made to coordinate the activities of interdependent parties.

Reduce interdependence

Sometimes excessive conflict can be avoided by altering some aspect of the formal organization. One approach is to reduce friction between interdependent parties by creating "buffers." For example, the pressure on production to fill rush orders for sales can be reduced by increasing inventory stocks of completed products, as long as inventory costs would not be substantially increased.

In some cases it is feasible to take more drastic steps and redesign jobs or reorganize departments in order to reduce task interdependence, eliminate competition, or clarify jurisdictional boundaries. Chapple and Sayles (1961) provide an example of conflict reduction by means of structural reorganization. The mechanics in a plant belonged to a separate maintenance department and had their own supervisor. Hostility developed between the mechanics and production foremen, and among the production foremen themselves, because of competition over whose machines should be repaired first by the mechanics. The common superior, a vice president of manufacturing, frequently had to settle violent arguments. Attempts to establish standard decision criteria were unsuccessful. Finally the vice president modified the organization of departments and assigned mechanics to the general foremen of production, and in some cases, to individual production foremen. No additional mechanics were needed for this reorganization, and the result was an end to the conflict and reduction in work-flow delays.

Changing the organization structure to create self-contained departments is not always appropriate or politically feasible. As is pointed out in Chapter 11, it is often more efficient to have interdependent specialized departments than to create independent departments. There are also times when it is advantageous to have departments with overlapping responsibility and joint responsibility, or to have other structural forms that tend to create conflict.

Reallocate resources

When conflict is caused by competition over scarce resources, it can be reduced by making more resources available to each party. The resources may be budgetary funds, personnel, equipment, or facilities. Providing additional resources has an obvious cost, and in some cases the cost will be too great to justify this approach. Conflict over resources is not necessarily undesirable. Competition for scarce resources encourages more careful planning and greater attention to efficient use of resources. Thus in some cases it may be desirable to increase conflict by making less resources available and allocating them on a competitive basis.

Modify reward contingencies

Sometimes the organization inadvertantly fosters conflict by rewarding competition rather than cooperation. In this situation conflict can be reduced by modifying reward contingencies. For example, competitive bonuses can be replaced by noncompetitive bonuses based solely on an individual's own level of performance, or by a bonus based on the joint performance of the parties. Promotion can be decided on the basis of factors other than comparative job performance, such as promotability ratings received in an assessment center (see Chapter 14). Emphasis on differential status symbols can be gradually reduced, so that status differences are not so obvious. Of course, if more rather than less conflict is desirable, incentives can be used in the opposite manner to foster competition and reward confrontation behavior that is constructive.

Modify communication patterns

Communication between parties is usually restricted and distorted when there is either too much or too little conflict (Brown, 1983).

Although poor communication is usually more of a symptom of conflict than a cause, interventions directed at improvement of communication are sometimes helpful. One form of intervention is to provide the parties with more relevant and reliable information needed for mutual problem solving. Various steps can be taken to ensure that the information exchanged by the parties is accurate. For example, each party may be given access to the other's operating and financial records, or independent auditors may be used to verify statements and claims made by group representatives during negotiations. Joint fact-finding committees can be established to investigate mutual problems and identify promising solutions in an atmosphere of reduced pressure for partisan behavior. Establishing norms about openness and honesty and getting the parties to agree to abide by these norms can discourage the parties from distorting or withholding information.

Increase conflict-coping skills

Another way to improve conflict management is to increase the coping skills of persons likely to be involved in conflicts. Persons who serve as representatives of interdependent groups should be assertive enough to seek confrontation but should have the maturity and interpersonal skills necessary to make this confrontation mutually productive. Representatives should have a good understanding of conflict dynamics and be aware of the dangers posed by unrealistic stereotypes, escalating hostility, and avoidance of difficult issues. Conflict-coping skills can be increased partly by better selection of representatives and partly through additional training.

Use integrators

When an organization has interdependent specialized departments, the use of "integrators" is one approach for achieving continuous coordination and managing conflicts due to different goal orientations (see Chapter 11). An integrator is a person who is assigned the express function of facilitating communication and coordination between the members of certain interdependent department. The integrator typically participates in joint problem solving with the respective departments and uses a combination of mediation and arbitration to help resolve disputes.

Based on research with companies in various industries, Lawrence and Lorsch (1967) have reached certain conclusions about the necessary conditions for integrator effectiveness:

1. In the kinds of situations requiring special integrators, their role should be formalized and backed up by position power. This will

ensure that the integrator is not ignored or rebuffed by the parties and is given some capacity to arbitrate issues that cannot be otherwise resolved.

2. The integrator should be someone who has considerable technical knowledge about the functions to be coordinated. This knowledge will provide the integrator with expert power, which is an important source of influence for integrators. In addition, an integrator who can "speak the language" of different specialist groups is better able to facilitate accurate communication between them.

3. The integrator should have a balanced orientation that will allow an understanding and appreciation of the goals and concerns of each of the departments to be coordinated. The integrator must also have a balanced orientation, in order to serve as a neutral third party in helping to settle conflicts.

4. The basis for evaluating and rewarding integrators should be the success of the products or projects that the integrator is responsible for coordinating. This will help to ensure that the integrator is primarily concerned about organizational effectiveness rather than short-run harmony or pleasing strong departments at the expense of weaker ones.

5. The integrator should have traits and skills that contribute to effective leadership in structuring intergroup relations and guiding confrontation along productive channels. Lawrence and Lorsch (1967) found that successful integrators tended to possess self-confidence, verbal fluency, ambition, enthusiasm, flexibility, social poise, and persuasiveness.

SUMMARY

Conflict occurs in all organizations in varying degrees. The major antecedent conditions that contribute to the development of conflict include: competition for scarce resources, task interdependence, jurisdictional ambiguity, status problems, communication barriers, and certain individual traits. Conflicts are likely to be severe and difficult to resolve if there is a win-lose contest in which each party believes it is right and the other party is wrong.

The parties involved in a conflict can react in a number of ways, including: accommodation, withdrawal, smoothing, persuasion, forcing, bargaining, and integrative problem solving. The appropriateness of each approach and the consequences for conflict resolution depend on the nature of the conflict. If the parties are unable to settle a disruptive conflict by themselves, they may be assisted by a third party. Forms of third-party intervention include: arbitration, mediation, and process consultation.

Conflict can have both positive and negative consequences for an organization. Effective conflict management requires the maintenance of an optimal level of conflict and the minimization of its undesirable consequences. The usual approaches for regulating lateral conflict in organizations include: establishing rules and standard decision procedures, modifying work-flow arrangements and task interdependence, modifying the reward system, reallocating resources, modifying communication patterns, providing for intervention by third parties, and training personnel to handle conflict. Use of "integrators" is an effective approach for managing conflict between departments in some situations. Successful integrators are likely to have formalized roles with position power, relevant expertise, a balanced orientation, and personality traits that aid them in structuring interunit relations and promoting cooperation.

REVIEW AND DISCUSSION QUESTIONS

1. Define or explain each of the following key terms: *conflict, pseudoconflict, antecedent condition, win-lose conflict, stereotype, withdrawal, accommodation, smoothing, conciliation, forcing, bargaining, integrative problem solving, third-party intervention, arbitration, mediation, interparty process consultation, lateral conflict, integrator.*
2. What are the likely consequences of conflict in organizations?
3. What are the major antecedent conditions for the development of conflict?
4. What typically occurs when there is prolonged and intense competition between two groups?
5. What are some conciliation tactics?
6. What are some persuasion tactics?
7. What are some exchange-oriented tactics?
8. What are some pressure tactics?
9. What are some tactics used with integrative problem solving?
10. What general approaches are available for managing conflict in organizations?
11. What are the necessary conditions for integrator effectiveness?

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9

Power and politics in organizations

The accumulation and exercise of power is a pervasive process in organizations (Bacharach & Lawler, 1980; Madison, Allen, Porter, Renwick, & Mayes, 1980). It permeates other organizational processes, such as decision making, communication, leadership, motivation, executive selection, and organizational adaptation and change. Analysis of power and political behavior is essential for understanding much of what happens within organizations.

Members of organizations are usually sensitive to the importance of power and politics, but behavioral scientists have only recently begun to devote serious attention to these topics. As yet there has been only a limited amount of research on power and politics (Gandz & Murray, 1980). Even so, the available research provides considerable insight into the sources of power, how it is exercised, the conditions under which political behavior is most prevalent, and the consequences of political behavior in organizations. The purpose of this chapter is to review what has been learned about these subjects.

POWER, POLITICS, AND AUTHORITY

Power and politics are concepts easily understood at an intuitive level by members of organizations (Madison et al., 1980; Pfeffer, 1981). They are able to agree about who has the most and least amount of power even without having the term defined for them by researchers. In the most general sense, power is the ability of a person or group to bring about desired outcomes. Power is the potential to influence people and events, whereas politics is the process of accumulating and exercising power. However, in attempting to be more precise about the definition of these concepts, behavioral scientists find considerable room for disagreement. Most definitional disagreements involve the appropriate manner in which to determine influence and the appropriate basis for classifying behavior as political or nonpolitical (Gandz & Murray, 1980).

Definition of power

One difficulty in defining power stems from the fact that it is context-specific. A person or group has more potential influence over some people or events than over others and has more influence for a particular issue or decision than for others. Moroever, there are qualitatively different forms of influence. One can talk in terms of influence over people, events, or things. Influence over people may involve only their behavior, only their attitudes, or both behavior and attitudes at the same time. For example, it may be possible to force a person to do something without being able to convince the person that it is the proper thing to do. This form of influence appears quite different from the case in which a person is persuaded to do something voluntarily. Finally, power is a dynamic variable that changes as conditions change. The amount of power possessed by a person or group can increase or decrease dramatically over a relatively short period of time.

The definition of power is also complicated by the reciprocal nature of influence processes. Even though one actor may be able to influence the behavior of another, the second actor usually has some counterpower over the first. If you try to force a person to do something, the person may be able to retaliate in some way that is very costly to you. Similarly, if you try to induce someone to do something, you may have to accept a commitment to provide a favor in return. It is important to differentiate between the situation in which both parties have weak influence over each other, the situation in which both parties have strong influence over each other, and the situation in which one party is powerful and the other is not. A party with considerable power will be more constrained in using this power to influence someone who has considerable counterpower than to use it against someone who is weak. It is for this reason that some theorists prefer to define power in terms of capacity to accomplish desired outcomes at an acceptable cost, rather than in terms of absolute potential to exert unilateral influence regardless of cost. Nevertheless, both the relative and absolute measurement of power can be useful for understanding organizational behavior.

Measurement of power

Since power is potential influence rather than enacted influence, it is not directly observable. A number of different methods have been used to measure power indirectly. One approach is to estimate potential influence by examining the outcomes of contested decisions in an organization. It is reasonable to assume that the parties who usually gain the most from these decisions have the most power. A limitation of the approach is that both the winners and losers may be unwilling to discuss conflict outcomes candidly—the winners to avoid arousing criticism of their power, and the losers to save face and avoid further erosion of power (Pfeffer, 1981).

A second approach is to assess power by examining each party's available sources of power and the constraints on its use. Determining the relative importance of each power source and the potential influence provided by it involves difficult and subjective judgments. A party may not realize all of the power sources available to it, or may lack the skills to make full use of some power sources. Thus this approach is also limited in accuracy.

A third approach is to examine reputational indicators of power. This approach assumes that a relatively stable power distribution exists at a given point in time, that organization members know who has how much power, and that they are willing to talk candidly about the power distribution. When these assumptions do not hold, reputational indicators will be inaccurate.

Some more objective indicators of power are also available. Such status symbols as a person's position title, office location and furnishings, salary, and special privileges provide an indication of the person's power in the organization. A weakness of this kind of measure is the possibility that status symbols may lag behind shifts in power or that some powerful persons may prefer to avoid obvious status symbols (Pfeffer, 1981). The same type of objective power indicators are available for subunits of organizations. The indicators include such things as the subunit's scope of formal authority, the title and rank of its leader in the organization's authority hierarchy, the desirability of the location of the subunit's offices or facilities, the subunit's representation on key committees, and its success in placing members in key administrative positions. For example, if the chief executive of a company is usually selected from the finance department, it is an indication that the department is probably very powerful.

Since all of the measurement methods are inexact, the best approach is to use a combination of different measures. In studies of the power of academic departments in a large university, Pfeffer and Salancik (1974) found considerable convergence among several different power measures of the type just described. It appears that despite the measurement problems, it is possible to determine the relative power of different organizational subunits with reasonable accuracy when multiple measures are used.

Power and politics

Like power, politics is a difficult concept to define in a precise manner. The biggest controversy surrounding the definition of politics is about the appropriate way to distinguish between political and nonpolitical behavior. Politics would not be a useful concept if it were defined so broadly that all types of organizational behavior were included. Pfeffer (1981) defines politics as activities or behavior through which power is developed and used to obtain one's preferred outcomes. In other words, "politics is the study of power in action" (p. 7). Nonpolitical behavior includes purely rational processes of analysis and decision making and other activities that do not involve the use of power or its accumulation. Note that Pfeffer's definition of politics says nothing about the legitimacy of either the means or ends of the political activity. Mayes and Allen (1977) define politics in a more restrictive manner. According to these writers, politics is the use of power to obtain nonsanctioned objectives or to obtain sanctioned objectives by nonsanctioned methods. In other words, politics is seen as an unacceptable, deviant use of power. However, as Pfeffer points out, the sanctioning of both objectives and means is itself the result of power usage. Powerful parties are able to get their definition of reality accepted, and these parties substantially influence the criteria and procedures used in making decisions in the organization. Thus Pfeffer's less restrictive definition of politics seems more appropriate.

Power and authority

Power is the capacity to exert influence, whereas authority is the right to exert influence (Jacobs, 1970). Authority is based on perceptions about the perogatives, responsibilities, and obligations associated with particular positions in an organization or social system. It is the perceived right of one position occupant to influence specified aspects of the behavior of another position occupant.

The exercise of authority by some persons over others has important implications for organizational effectiveness. The complex pattern of role specialization and interdependence makes it essential for members of an organization to comply with role expectations, including unpopular ones. Managers cannot rely solely on demonstrated expertise, personal loyalty, or shared values to obtain compliance with requests and directions. Since people come and go in organizations, there may not be enough time to develop these sources of personal influence. Thus organizations rely on authority as a mechanism for obtaining minimal conformity with role requirements and managerial directions (Hamner & Organ, 1978; Katz & Kahn, 1978).

Authority not only facilitates reliable role performance, it also makes the exercise of power easier and more acceptable. There is less likelihood of resistance or resentment toward the person exercising power when the person is expected to make legitimate requests as a normal part of his or her job (Pfeffer, 1981). Influence can be exerted without incurring costs—such as the expenditure of resources in the form of incentives or the obligation to repay favors at a future time.

It is important to remember that authority is both a source and a result of power. It is a *source* when an authority figure is able to obtain compliance merely by making a legitimate request. It is a *result* when the power of an individual or group is used to influence either the conditions for exercising authority or the selection of authority figures. For example, an administrator may use his or her power to influence other members of the organization to give the administrator more authority, or a subunit of the organization may use its power to get one of its own members selected for the position of chief executive in the organization.

CONDITIONS ENCOURAGING POLITICAL ACTION

Power is more likely to be used in some situations than in others. It is seldom used indiscriminately, due to the possible costs such as expenditure of resources, hostility from persons who are forced to do something against their will, and restriction of power by a coalition of parties who feel threatened by it. Pfeffer proposed that political activity is most likely to occur under the following three conditions: (1) there is conflict over goals, strategies, or resources, (2) the decision is important to the parties, (3) power is dispersed among the parties (see Figure 9–1). We will now look at these facilitating conditions more closely.

Conflict over goals, strategies, or resources

As noted in Chapter 8, task-related conflict is likely to occur when individuals or subunits of an organization have interdependent tasks

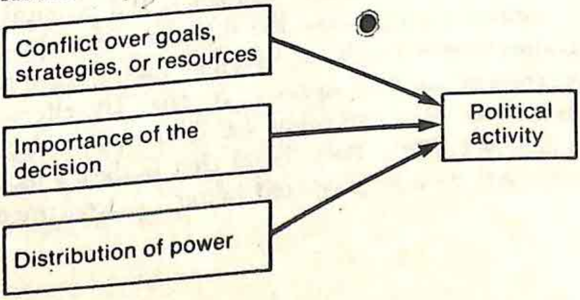
FIGURE 9–1
Antecedent conditions for political activity
Conflict over goals, strategies, or resources
Importance of the decision
Distribution of power
Political activity

and incongruent goals (Lawrence & Lorsch, 1967). Task interdependence means that the actions of one party affect those of the other, and the parties must coordinate their actions to accomplish the task. For example, when a production department of a company depends on a sales department to obtain orders for its products, these orders must be taken into account when making production decisions. In the same way, the sales department must consider production costs and capacity when making pricing and marketing decisions. Incongruent goals exist when the objectives of one party cannot be attained without interfering with the attainment of another party's objectives. For example, the production department may desire to reduce production costs by producing large batches of only a few standard products, whereas the sales department may seek to increase sales by offering customers a large variety of products tailored to their unique needs. In a study by Gandz and Murray (1980), the organizational process most often reported to be pervaded by politics was interdepartmental coordination. In a similar study of perceptions about organizational politics, Madison, et al. (1980) found that politics were more likely to be involved in making decisions about budget allocations, personnel changes, or reorganization than in decisions about performance standards or changes in work rules and procedures.

Conflict also results from disagreement about priorities for multiple goals. A finance department and a marketing department in a company may agree that profits and market share are both important objectives, but finance may prefer to sacrifice some market share to gain larger profits, whereas marketing may prefer to sacrifice some profits to gain a larger share of the market.

Even when there is agreement about goals, the parties may disagree about the best action strategy for attaining these goals. For example, one party may believe that sales can be increased only by offering a cheaper product, whereas the other party believes that sales will only increase if a higher-quality, more expensive product is offered. Unless there is some objective method to identify the best strategy (e.g., a market survey), the conflict will tend to be resolved through politics (Gandz & Murray, 1980; Pfeffer, Salancik, & Leblebici, 1976).

One of the most common conflicts is due to competition for scarce resources, such as budgetary funds, personnel, and physical space. As scarcity of a resource increases and the number of worthy contenders with valid claims grows larger, it becomes increasingly difficult to allocate resources according to objective criteria. The effect of scarcity on use of power to influence decisions was demonstrated in a study by Hills and Mahoney (1978). They found that budget allocations at a large public university were predicted better by departmental power during years when resources were scarcer than during years when resources were more abundant. In a similar study, Salancik and Pfeffer (1974) found that measures of departmental power predicted the allocations of such scarce resources as graduate fellowships much better than they predicted the allocation of plentiful resources, such as summer faculty fellowships.

Importance of decision or resource

Conflict does not necessarily result in political action. If a decision has no important implications for a party, it usually will not be considered worth the cost of using power to influence the decision in the party's favor. A decision is more likely to be considered important if the status or survival of the party is at stake, if the balance of power in the organization is in question, if deep ideological values are involved, or if the decision is about the allocation of scarce resources that are vital for the party's performance of its task.

Distribution of power

A third condition favoring occurrence of politics is a fairly even distribution of power among concerned parties. When power is highly concentrated in an organization, decisions will be dominated by the party in control and imposed on others. Power is still an important determinant of the decision, but there is little overt use of power, since nobody has much chance of prevailing against the dominant party. For example, in an owner-managed company, decisions by the owner are unlikely to be seriously challenged by other managers or employees. In contrast, when power is more evenly distributed, decisions are likely to be made through overt political processes and power struggles.

SOURCES OF POWER

There are many sources of power. As we saw in Chapter 7, power is derived in part from one's position in the organization and in part from one's skills and personal attributes. Most power stems from the dependence of one party on another for something the first party strongly desires. The dependence may involve the power holder's capacity to provide resources, recognition, social acceptance, support, cooperation, information, advice, or solutions to serious problems. Power also stems from authority, control over information, and personal attraction. The various sources of power are not mutually exclusive, but each will be examined separately.

Control over tangible resources

Organizational subunits require tangible resources, such as money, supplies, and equipment in order to perform their activities. Some of these inputs are more critical and difficult to obtain than others. Access to and control over resources is an important source of power in organizations. Money is especially useful as a power source because it can be easily stored or converted into other needed resources (Pfeffer, 1981). Control over resources implies that they are not already committed to a particular use. The power derived from discretionary funds is magnified by the typical budgetary process in organizations. Allocations are usually based on the pattern of previous years, as each subunit resists any cuts below this level and presses for additional increments above it. As a consequence, the discretionary funds available for new programs and activities are usually very limited, even though the overall budget itself may be very large. Any party with access to discretionary resources can use them as a source of power over other parties who strongly desire to use these resources.

Power is enacted by offering to provide resources to someone in return for doing something you want. This form of power is sometimes called reward power (French & Raven, 1959). In contrast, the threat of withholding resources is called coercive power. Even the perception by others that a party controls a valued resource can create reward or coercive power for the party, at least until the misperception is discovered.

The likelihood of compliance with an influence attempt based on reward power is greatest when the party is highly dependent on the power holder for attaining the reward and cannot get it any other way. Compliance is also more likely when the party perceives that the request is both feasible and proper (Cartwright, 1965).

In the case of coercive power, compliance is motivated primarily by fear. Compliance with the explicit or implicit threat to withhold a valued resource or prevent the party from obtaining it is more likely when the power holder is perceived to be capable and willing to carry out the threat. However, since coercion often arouses anger and resentment, and may result either in resistance or retaliation, it is a form of power that is useful only in a limited range of situations.

Formal authority

The importance of formal authority as a source of power was mentioned earlier in this chapter. In addition to the perceived obligation to comply with legitimate requests, authority also entails a degree of direct control over things and processes. Managers typically have authority to allocate certain resources to subordinates, to determine work procedures, and to allocate organizational rewards and punishments. Thus authority overlaps other power sources and cannot be entirely differentiated from them.

The most direct exercise of authority to influence other people involves making a "legitimate request" in the form of an order, command, directive, or suggestion. The success of an authoritative request depends on the perception by others that the person making the request is a legitimate occupant of his or her position of authority, and on the perception that the request falls within the person's scope of formal authority. The scope of authority for a position occupant may be specified in writing by documents—job descriptions, employment contracts, organization charter and bylaws, regulations manuals, and so forth. However, despite these kinds of documents, there may still be considerable ambiguity about a particular person's scope of authority in an organization. For example, "an executive can rightfully expect a supervisor to work hard and diligently; may he also influence the supervisor to spy on rivals, spend weekends away from home, join an encounter group?" (Reitz, 1977, p. 468). Refusal to comply with an authoritative request is especially likely when there is no clear basis for determining scope of authority, such as with persons having overlapping responsibilities, or persons on a newly formed committee.

Expertise

Another major source of power is expertise in solving problems and performing task activities. This form of power is sometimes called expert power (French & Raven, 1959). Once again, the prerequisite for expertise being a source of power is the dependency of others on the party with the expertise. Dependency implies that the dependent parties lack equivalent expertise and cannot easily find another person with this expertise to provide the advice and assistance they need. The more important a problem or task is to the dependent party, the greater the power derived from possessing the expertise necessary to solve the problem or perform the task (Patchen, 1974).

Expert power depends to a large extent on the perception of others. If people with a problem believe that an individual has the expertise to solve it, the person will have expert power, at least until it becomes evident that he or she really does not have any special expertise. Since expert power depends on impressions, people with a great deal of self-confidence tend to have more expert power than people who act indecisive, vacillate in their behavior, and express self-doubts. A person gains more expert power by demonstrating competence, such as by making decisions or initiating changes that prove successful, or by giving advice or making predictions that prove to be correct. Expert power is diminished by showing poor judgment, offering faulty advice, making careless statements, and/or making poor decisions (Hollander, 1979).

Specialized knowledge or skills will remain a source of expert power only if there is continued dependence on the person who possesses them. If the problem is solved and it does not recur, or if others learn how to solve the problem by themselves, the basis for expert power will disappear. For this reason, people with expert power sometimes go to great lengths to protect their knowledge and keep it secret. For example, Goldner (1970) found that an industrial relations department intentionally negotiated a vague contract with the union in order to increase organizational dependence on the department to maintain harmonious labor relations. Sometimes a crisis may be created intentionally just to provide an opportunity to demonstrate expertise and increase the perceived dependency of others (Goldner, 1970; Hickson, Hinings, Lee, Schneck, & Pennings, 1971).

Expert power sometimes generalizes beyond the specific type of problem or task for which the person has special skill or knowledge. For example, a manager who is skilled in conducting market surveys may also be considered an expert in designing new products, even though the manager actually lacks technical skill in product design. However, a person risks loss of credibility by pretending to be an expert in matters beyond his or her actual range of expertise.

Control over information

Access to information and control over its distribution provide another source of power in organizations. Sometimes it is difficult to distinguish between power based on information and power based on expertise because expertise may stem in part from monopolizing information about the task. Similarly, it is sometimes difficult to distinguish between information control and resource control because technical information may be a necessary resource for successful task performance. Despite these complexities, information control has some unique implications for exercising power.

Control over information can be used to influence decisions made by persons dependent on this information. Information can be selectively filtered and distorted to shape the perception of a problem and bias the decision maker's evaluation of alternatives. For example, in one study by Pettigrew (1972), a manager was able to influence the selection of a computer by systematically providing the board of directors with information that favored one option and discredited others.

When decisions are made by a group, limited access of other members to information sources makes it easy for a member who controls this information to influence the decisions. Information introduced by this person favoring a particular interpretation of the problem or a particular solution to it is unlikely to be ignored by other members, because of the strong values placed on rationality in decision making by most groups (Pfeffer, 1981). Lacking their own independent source of information, other members will be reluctant to accuse someone of deliberately distorting information. This kind of accusation would be devisive, and it is unlikely to be made in a cohesive group that values trust and harmony.

Control over information reduces the likelihood that a person's decisions will be challenged by subordinates, superiors, or others in the organizations. Control over the distribution of information makes it easier to define social reality for others in a way that serves one's interests. It is easier to cover up mistakes and poor decisions, or at least to delay their discovery. The impression of expertise can be heightened by inflated reports of successful performance.

Position in the organization

A person's position in the organization is an important determinant of power in several respects. First, the higher a person is in the authority hierarchy, the more control over resources the person is likely to have. Executives have more authority, status, and control over resources than first-line supervisors. In addition to making the most important decisions, executives have power of review over most decisions made at lower levels. Membership on a key committee is a source of power in organizations that rely on committees to formulate policy and make important operating decisions.

Second, the organizational subunit to which a person belongs provides more or less opportunity to solve major problems. Subunits responsible for dealing with major uncertainties and crises offer members an opportunity to utilize their problem-solving skills and demonstrate their value to the organization. For example, Hambrick (1981) found that in insurance firms facing an environment in which the dominant concern was to remain competitive by developing new products and markets, managerial power was associated with involvement in marketing and product development. In contrast, for private nonteaching hospitals where the dominant environmental concern was pressure to become more cost-efficient, managerial power was associated with involvement in accounting/finance, operations, and process-improvement functions.

Third, a subunit gains power from having a strategic location in the work flow such that other units are dependent upon it (Hinings, Hickson, Pennings, & Schneck, 1974). For example, Crozier (1964) found that maintenance engineers in a highly mechanized tobacco manufacturing plant had more power than would be expected from their hierarchical status because other subunits of the organization depended on them to prevent disruption of their operations by machine breakdowns.

Position in the organization has other implications as well. Some positions are strategically located in the communication network and provide access to vital information. A boundary-role position in which a person is responsible for dealing with outsiders provides information-based power, especially when the person deals with a sector of the environment on which the organization is very dependent for its continued prosperity and survival. For example, purchasing agents gained power during the severe materials shortages in 1973–1974 (Spekman, 1979). In "gatekeeper" positions, such as the appointments secretary for an executive, power is derived from control over access to an important and powerful person. Access to a powerful person also provides an opportunity to lobby for a particular position and to seek favors for others. This opportunity can be used to gain influence and favors from the parties who would be helped by the "gatekeeper."

Power comes from being in the right place at the right time (McCall, 1978), but a person's position in the organization is not entirely beyond the person's control. People with keen political awareness and special expertise in solving problems tend to gravitate to positions where the action is. They seek to acquire responsibility for important activities and try to avoid routine activities. They attempt to increase the dependence of others on them for information, assistance, advice, and support; and they try to avoid becoming overly dependent themselves (Korda, 1975; Martin & Sims, 1956). As their value to the organization is demonstrated, they tend to gain status and be promoted to positions of higher authority.

Personal attraction

Another source of power is the desire of others to please a person. This form of power is sometimes called referent power (French & Raven, 1959). People who feel a deep friendship or loyalty toward someone are usually willing to do special favors for the person. In addition, people will tend to imitate the behavior of someone they greatly admire, and they will tend to develop attitudes similar to those he or she expresses. Imitative behavior is most evident with popular heroes, movie stars, rock music stars, and charismatic religious and political leaders. The influence is not always intentional. Sometimes people imitate undesirable behavior in a person with whom they identify.

Intentional influence occurs when a person "models" desirable behavior for others to imitate or asks others to do a special favor. The motivation to comply with this kind of personal appeal is the desire to please the person making the request and gain his or her approval. A personal appeal based on strong referent power is usually successful, but this form of influence has its limitations. Some things are simply too much to ask, given the nature of the relationship, and extreme requests may irritate people and cause them to think less highly of the person making the request. Referent power will also be reduced if a person makes personal appeals too often. If you continuously ask for special favors from people, they tend to get annoyed and feel exploited (Yukl, 1981).

Referent power derives from the feeling of affection or loyalty toward a person. To develop referent power, therefore, one must act friendly, supportive, and considerate toward people. Doing favors and acting supportive tends to create a feeling of obligation to reciprocate. However, deep loyalty or friendship is usually established over a long period of mutually satisfying interaction between people, and it goes beyond merely an exchange of favors. Referent power also depends on the character and personal attributes of a person, and it will tend to be greater if the person is charming and attractive. Sometimes referent power becomes so strong that people will voluntarily make great sacrifices if they believe it is important to the person they admire so much.

INTERPERSONAL INFLUENCE TACTICS

The variety of tactics that can be used by one individual to influence another is indeed considerable. Lists of specific power tactics have been proposed by a number of writers, including Allen, Madison, Porter, Renwick, and Mayes (1979); Falbo (1977); Kipnis, Schmidt, and Wilkinson (1980); Martin and Sims (1956); Schilit and Locke (1982); Strauss (1962); and Tedeschi and Bonoma (1972). One approach used to identify influence tactics has been to ask members of many different types of organizations to describe an incident in which they succeeded in getting a superior, subordinate, or co-worker to do what they wanted. Kipnis et al. (1980) conducted a study of this kind and analyzed the resulting incidents to classify the influence tactics into broader categories. The eight categories they found and some representative examples of tactics in each category are shown in Table 9–1.

The researchers found that the choice of an influence tactic depended

TABLE 9–1
Categories of individual influence tactics

Assertiveness
- Order or demand that the person do it.
- Repeatedly remind the person about what I wanted.
- Keep checking on the person to see if it was done.
- Point out that the rules require him/her to do it.

Ingratiation
- Act humbly while making the request.
- Ask in a polite way.
- Act friendly (e.g., compliment him/her) before making the request.
- Sympathize with the person about the problems my request will cause him/her.

Rational appeals
- Write a detailed plan justifying my request.
- Present information supporting my point of view.
- Explain the reasons for my request.

Sanctions
- Threaten to get the person fired.
- Promise to give a salary increase.
- Threaten to give an unfavorable performance evaluation.
- Threaten to prevent the person from getting a promotion.

Exchange
- Propose an exchange of favors.
- Remind the person of past favors I did for him/her.
- Do a favor for the person before making the request.
- Offer to help the person do what is requested.

Upward appeal
- Appeal to higher levels to intervene in support of my request.
- Obtain the informal support of higher authorities.
- Send the person to see my superior.
- Send a report about the person to my superior.

Blocking
- Threaten to notify an outside agency.
- Threaten to stop working with the person.
- Ignore the person and stop being friendly.
- Engage in a work slowdown until he/she does what I want.

Coalition
- Obtain the support of co-workers to back up my request.
- Obtain the support of subordinates to back up my request.
- Make the request at a formal conference where others will support it also.

Source: Based on D. Kipnis, S. M. Schmidt, and I. Wilkinson, "Interorganizational Influence Tactics: Explorations in Getting One's Way," *Journal of Applied Psychology* 65 (1980), pp. 440–52.

on the objective of the influence attempt. For example, exchange tactics and ingratiation tactics were more likely to be used to obtain personal favors, whereas rational appeals and coalition tactics were more likely to be used to gain acceptance of changes in the work. Choice of tactics also depended on the relative power or status of the two parties. Assertiveness tactics and sanctions were used more often for influencing subordinates than for influencing superiors or peers. Rational appeals were used more often for influencing superiors than for influencing peers or subordinates. Ingratiation tactics, exchange tactics, and upward appeals were used more often for influencing co-workers and subordinates than for influencing superiors.

POWER AND POLITICAL TACTICS

Just as power has many sources, there are many political tactics for exercising and protecting power. The consequences of using power depend in part on the appropriate selection of tactics. The exercise of power is usually more successful if the tactics employed are unobtrusive and nonthreatening (McCall, 1978). Power tactics that are blatantly manipulative tend to cause someone to react in a defensive manner. Unobtrusive tactics that do not threaten a person's self-esteem are less likely to cause resentment and resistance.

There is little agreement about the best way to classify power tactics, and many different taxonomies have been proposed. It seems useful to differentiate between the common influence tactics used by individuals and the political tactics used by groups and coalitions to influence organizational decisions and maintain a dominant position in the organization. Political tactics are usually more elaborate and time-consuming than individual influence tactics. Major political tactics include coalition formation, cooptation, decision channeling, symbolic language, and institutionalization. The following description of these tactics is based heavily upon Pfeffer's (1981) political theory of organizational decision making.

Coalition formation tactics

An organizational subunit can increase its influence in the organization by forming alliances with other groups (Bacharach & Lawler, 1980; Kanter, 1977). In a coalition, each party helps the others in getting what they want. Sometimes the basis for forming a coalition is common opposition to or support for a particular policy, program, or change. Coalitions also form to restrict the power of a third party and prevent this party from becoming dominant in the organization. One common type of coalition in business organizations is a union or employee association formed to take collective action and present a united front to top management (Mechanic, 1962). A coalition is most likely to endure if its members are not competing with each other for critical resources.

Coalition formation also occurs to build a broad base of support for a particular decision or policy. A broad consensus helps to ensure that a decision will be implemented effectively after it is made. In organizations, decision making is often delayed until a broad-based coalition is formed in support of a particular alternative.

One tactic for gaining allies is to do favors and create a sense of obligation to reciprocate them. At some future time, these political IOUs can be called in. Another tactic for building an alliance is to place a member of your subunit, a relative, or a friend in a position of authority within another subunit. It is easier to persuade another group to support you if an insider in the group presents your case to the other members.

Coalitions may be formed with outside parties as well as with other parties within an organization. External allies are not as useful for influencing organizational decisions as are internal allies, but they are unlikely to compete with you for resources and power within the organization. It is quite common for a boundary-spanning unit, such as a marketing department or a purchasing department, to form an alliance with a client or supplier. In an example provided by Pfeffer (1981), the purchasing department of a company asked some of its vendors to lobby with top management to preserve existing procurement procedures and prevent the production department from gaining control over procurement decisions. The vendors supported the purchasing department because they were afraid of losing orders if control over procurement shifted to production.

Cooptation tactics

Cooptation is a process of gaining support from opposition parties or undermining their opposition. One form of cooptation is to invite representatives from a group to join a committee or advisory board whose decisions the group is likely to oppose. Exposing the representatives to the realities of the decisions and the need to balance competing interests tends to influence their attitudes and make the representatives more sympathetic toward the position held by the coopting party. If the representatives can be induced to publicly support the position of the coopting party on some issue, the private attitudes of the representatives are likely to change toward consistency with their public position in order to reduce dissonance. Endorsement of a decision or policy by the representatives may also influence their constituent group to support it, or at least to reduce their opposition.

Another form of cooptation is to induce a prominent opponent of a policy to accept an administrative position responsible for implementing the policy. The inducement is accomplished by offering the person valued rewards, such as a large salary, expense account, or increased status. In the process of trying to meet the role requirements of the administrative position, the person is likely to develop more favorable attitudes toward the policy and may even become committed to it. Public support by someone who was formerly a prominent opponent of the policy will also help to persuade other opponents that the policy is acceptable.

A more direct form of cooptation occurs when an entire group of persons (e.g., a manager's subordinates) is invited to participate in making decisions about which the group has strong feelings. People tend to identify with a decision they help to make, and they are likely to be strongly committed to implement it. Of course, decision participation will only be successful as a cooptation strategy if the group agrees on a decision that is acceptable to the coopting party, which is unlikely unless the group has compatible objectives with this party. Like all forms of cooptation, there is a risk of losing control over decisions. There is also a risk of losing control over sensitive information that may otherwise be used as a power source.

Tactics for influencing decision processes

One of the most effective ways to exert power in an organization is to unobtrusively bias decision processes in your favor. It may be possible to influence the decision process at several stages, including the agenda for decision making, the identification of alternatives to be considered, and the criteria to be used in making a final choice among alternatives.

Control of the agenda for a decision-making group is a tactic for preventing undesirable decisions from being made. It is sometimes easier to prevent an issue from surfacing than to win a favorable decision in open debate. This strategy is applicable when a party decides to preserve the status quo and can restrict agenda items in some manner, such as by requiring approval by an administrator or executive committee sympathetic to the party's interests. If an issue cannot be kept off the agenda, it may be possible to place it at a spot where the chances of approval are lowest. For example, an issue placed at the end of the agenda may never be discussed if there are several other issues and the meeting has a time limit.

Another stage of the decision process subject to possible influence is the generation of alternatives among which a choice will be made. It is typical in organizations to narrow the range of alternatives by the time of the final choice. If a party is able to restrict the alternatives to those that would be acceptable to it, the decision will be biased in the party's favor. There are a number of tactics for limiting the range of alternatives. One approach is to form a study committee, search committee, or planning committee to investigate alternatives and present a limited number of acceptable ones for consideration by the administrator or decision group responsible for making the final decision. If the party can substantially influence this prescreening process, undesirable alternatives can be ignored or eliminated, and desirable ones retained.

If a party is unable to prevent an unfavorable alternative from being considered by an administrator or decision group, the party may be able to have it quickly dismissed without careful evaluation. A party with exclusive access to technical information can use this information selectively to discredit undesirable alternatives and make a preferred alternative appear more desirable than it really is. One tactic for ruling out an alternative is to state that it would not be acceptable to a powerful individual who must approve the decision but who is not present in the group. To use this tactic a person must have easier access to powerful persons than the other members of the decision group and must be a credible source of opinions about what would or would not be acceptable.

If a person lacks enough expert power and credibility to bias the evaluation of alternatives, it may be possible to influence the decision through the use of an outside expert. It is a common and accepted practice in making certain kinds of important organizational decisions to bring in an outside consultant to study the problem and make recommendations. If a party is able to determine the choice of a consultant, the decision itself can be influenced. It is difficult for the other parties involved in making a decision to ignore the analyses and suggestions of an outside expert who appears to be impartial and objective. Use of an outside consultant is a tactic similar to formation of a coalition with an external constituent. The consultant's motivation for favoring the sponsoring party's position is the desire to be rehired as a consultant in the future. Use of an outside expert appears to make a decision more rational, but unless opposing parties also have their own consultants, the decision may actually be quite political.

Another point where decisions can be affected is the selection of criteria to be used in evaluating alternatives. As we saw earlier, different subunits often disagree about objectives and priorities. If one party can get its major objective accepted as the basis for making a decision, the decision will tend to favor that party. For example, a subunit may prefer to evaluate new products or other ventures primarily in terms of return on investment, rather than in terms of other possible criteria (e.g., contribution to profits) that are less likely to favor a preferred alternative. A particularly effective tactic is to suggest the use of a choice procedure that appears to be rational and objective, but in reality is biased in the party's favor. For example, a party may be able to persuade an administrator or decision group to use a particular type of cost-benefit analysis for which the calculation of costs and benefits can be biased in favor of projects the party prefers. This tactic is especially effective when the party controls the information to be used in determining costs and benefits.

Tactics involving language and symbolism

Political language and symbolic activity can be used to rationalize and justify decisions made through a political process. This strategy can be used either to mobilize support or to undermine opposition to a particular decision or policy. The importance of language and symbolism stems from the social nature of organizational reality. People are influenced as much by the way other people interpret events as by the events themselves. Language and symbolism help to give people a sense of understanding about what is happening. Thus it is often possible to make a decision or policy appear more relevant and appropriate by explaining it in a way that appeals to the shared values, beliefs, and aspirations or organization members. Approval for a decision is gained by making it appear consistent with such values as honor, fairness, valor, humanitarianism, patriotism, and objectivity or by making it appear that the decision will result in a better life, a more secure job, or an opportunity to do something important and worthwhile. Language can be used to mobilize support both within an organizational unit and externally in the larger organization or community. External support is more likely if the activities and purposes of the unit are described in a manner that is consistent with the prevailing values and goals of the outside parties.

Symbolic action, like language, can be used to reduce opposition and pacify critics. The appearance of change and progress can be created in ways that are more symbolic than substantive. Symbolic actions include replacing leaders with someone new, creating new organizational subunits or positions to deal with a matter of concern, spending time visibly working on an important activity (e.g., by holding meetings), and forming a committee or task force to study a problem. The new leader may be no different than the old one, the reorganization may be cosmetic, the time spent on activity may be just for show, and the committee or task force may produce a report that is filed away and forgotten. However, in some cases what begins as merely a symbolic action may in time become a real change in political power in the organization. For example, suppose an equal employment opportunity office is established in a company to give the impression that something is being done about discrimination in hiring. At first the members may lack the power to influence hiring practices, but by skillful use of political tactics they may be able to mobilize support and gain enough power to accomplish their objectives.

Tactics for institutionalizing power

Power can be used to accumulate more power and to protect the sources of existing power. Power is used to gain control over information sources, to buy the support of influential persons in the organization, to influence budgetary decisions and gain more control over scarce resources, and to eliminate competing sources of expertise in order to increase dependency on the power holder to solve problems. Institutionalization refers to political tactics that result in the establishment of relatively permanent structures or policies favoring the continuing influence of a particular party in the organization (Salancik & Pfeffer, 1977).

One approach for legitimizing and perpetuating power is to create new authority positions and decision groups controlled by a party. For example, the department head in a university department established an executive committee dominated by his own close allies. The committee made important decisions that appeared to be a legitimate exercise of authority to persons in the university who were unaware that it was completely controlled by the department head.

Another institutionalization tactic is to establish charter provisions that make it difficult to remove a power holder and his or her allies from key administrative positions. For example, a powerful coalition may be able to establish unlimited terms of office for the executive positions its members occupy, or the coalition may be able to institute election procedures that favor the election of its members to key administrative positions and policymaking groups.

The process of power institutionalization in organizations tends to occur in subtle ways even when there is no conscious effort to accomplish it by the dominant coalition. Beliefs, rules, policies, and practices tend to become accepted as legitimate over time and are no longer questioned. People get used to doing things a particular way, and there is security in the familiar. Traditions and practices are supported by group norms and social pressure to conform to these norms. The more these traditions and practices favor a particular party, the more strongly will its power be legitimized and protected.

POWER AND INDIVIDUAL TRAITS

We saw earlier that such individual traits as expertise and charm tend to enhance a person's power. Traits also affect a person's desire for power and his or her behavior in exercising power (Christie & Geis, 1970; Kipnis, 1976; Mowday, 1979). Individuals differ greatly in power motivation and in political skills.

Power motivation

People with a strong need for power are more likely to seek out positions of authority and remain in them (McClelland, 1975; Winter, 1973). They gain satisfaction from exercising power and are more likely to fulfill the role requirements of authority positions. When a person with a low need for power is placed in a position of authority, he or she tends to lack the assertiveness and confidence necessary to organize the group, direct subordinates, and defend the group's interests in dealings with superiors and outsiders (McClelland, 1975; Miner, 1978). How a person behaves in a position of authority depends on the person's emotional maturity and self-control as well as on power needs. As was mentioned in Chapter 7, McClelland (1975) has identified two very different types of people with strong power needs.

People with a "personalized power orientation" are emotionally immature and have little inhibition or self-control. They exercise power impulsively to dominate others and keep them weak and dependent. According to McClelland and Burnham (1976, p. 103), "they are more rude to other people, they drink too much, they try to exploit others sexually, and they collect symbols of personal prestige such as fancy cars or big offices."

People with a "socialized power orientation" are more emotionally mature. They exercise power more for the benefit of others, and they are hesitant about using power in a manipulative manner. These people are less egocentric or defensive and are more willing to sacrifice their own self-interest for the welfare of the group or organization. In a position of authority, they are more likely to use a participative, coaching style of leadership, and will seek to build the self-confidence and skills of subordinates (see Chapter 7).

Political skills

The selection of power tactics and their successful use are affected by a person's political and interpersonal skills. Political awareness is the ability to analyze dependencies, assess power accurately, and recognize political tactics when they are being used by other people. Empathy and social sensitivity refer to the ability to understand the needs, attitudes, and feelings of other people. Oral communication skills refer to a person's ability to use language and symbols effectively. All of these skills, together with acting ability, tact, and diplomacy aid a person in using political tactics. Kotter (1978) reminds us that the necessary amount of political and interpersonal skills depends on the nature of the situation. More political skill and power-oriented behavior are necessary for success in positions with many, complex dependencies.

CONSEQUENCES OF ORGANIZATIONAL POLITICS

Internal politics can be beneficial or harmful to an organization, depending on how the process unfolds. Sometimes positive and negative consequences occur together. In this last section of the chapter, we will examine the consequences of organizational politics and consider ways to keep political activity from becoming harmful.

Overt power struggles and incessant political maneuvering occur in some organizations but not in others. The range of power tactics in use also varies from organization to organization. In some organizations, there is frequent use of extreme tactics designed to undermine or destroy opponents, whereas in other organizations, such tactics are seldom used. As noted in Chapter 8, conflicts in organizations may become so bitter that they disrupt normal operations. Power struggles can escalate into this kind of destructive conflict unless parties are constrained in their use of power tactics by norms of fairness and by a shared concern for organizational objectives. Thus one important consequence of politics is its effect on social and intergroup relations in the organization.

The political process of power acquisition and consolidation also has important implications for organizational change. As we saw earlier, adaptation to a dynamic and uncertain environment is more likely in an organization when power is used to channel resources into the solution of critical problems and to make necessary revisions in strategies and policies. However, the shift of power to parties capable of solving problems may be impeded by the efforts of a dominant coalition to institutionalize its power. A dominant coalition usually tries to maintain existing policies and practices, even when these are no longer appropriate in the face of environmental changes. The need to justify past decisions, to avoid the appearance of failure, and to appear consistent and resolute causes organizational leaders to react in ways that reduce the likelihood of effective adaptation. Problems are likely to be covered up or rationalized (e.g., "we haven't given the program enough time or support"). Efforts are likely to be made to suppress criticism and dissent, or to discredit the critics. Additional resources are likely to be allocated to faltering programs and strategies (Fox & Staw, 1979; Staw, 1976). As bad programs siphon off resources from good ones, the latter are weakened, thereby causing further reduction in organizational effectiveness. If desirable shifts in the distribution of power are thwarted for too long, the very survival of the organization may be jeopardized.

One way to facilitate adaptation and change is to create structures and mechanisms to discourage extreme concentrations of power and facilitate peaceful transition of power from one leader (or coalition) to another (Pfeffer, 1981). Structural mechanisms for improving adaptation include charter provisions limiting the term of office of top executives, provisions for achieving adequate representation of organizational units in key decision groups, provisions for improving the collection and dissemination of data on organizational effectiveness, and provisions creating an independent board of directors or trustees to review policy decisions made by organizational executives and to evaluate the performance of these leaders.

The development of an organization capable of creative adaptation to change is inhibited by the belief that overt politics and conflict are undesirable. Attempts to smooth over any substantive conflicts or to resolve them by using inappropriate rational procedures merely replaces overt political processes with covert ones (Pfeffer, 1981). It is far better to encourage the use of an overt process by which competing interests are resolved through open debate, discussion, and integrative problem solving (see Chapter 8).

SUMMARY

In recent years behavioral scientists have begun to recognize how important and pervasive power and politics are in organizations. Power is most likely to be used in conflict situations where an importnt decision must be made, or where there is competition for scarce, critical resources. Overt power struggles occur more often when power is widely distributed than when it is concentrated in a dominant coalition.

There are many sources of power, most of which involve some form of dependence. The amount of power possessed by a person depends jointly on characteristics of the person and characteristics of the situation. Power can be derived from formal authority, control over tangible resources, unique expertise, control over information, personal admiration and loyalty by others, and access to powerful persons.

There are many different political tactics for accumulating and preserving power. Major types of tactics include coalition formation, cooptation, indirect manipulation of decisions, use of political language and symbolic activity, and institutionalization.

The extent to which a person seeks to accumulate power and the manner in which it is exercised depends on the person's need for power and emotional maturity. A person with a socialized power concern and well-developed political skills is most likely to be successful in a position of authority.

The consequences of political activity for an organization depend on whether this activity facilitates or inhibits adaptation to changing conditions. A moderate degree of institutionalization provides stability and focused effort in pursuit of organizational goals, but too much institutionalization prevents necessary changes in the distribution of power and impedes adaptation. Power struggles are a necessary part of the adaptation process, but unless there is some restriction on the range of power tactics used, the conflict can escalate to the point where it immobilizes the organization or tears it apart.

REVIEW AND DISCUSSION QUESTIONS

1. Define and explain each of the following terms: *power, politics, authority, legitimate request, personal appeal, gatekeeper, coalition, cooptation, symbolic action, power institutionalization.*
2. What are some alternative ways to measure power in organizations? What are the limitations of each method?
3. Explain how authority can be both a source and result of power.
4. Under what conditions is political activity most likely to occur in organizations?
5. What are the major sources of power for an individual or group in an organization?
6. What are some interpersonal influence tactics?
7. What are some political tactics commonly used in organizations to influence decisions and protect one's power?
8. How are individual traits related to a person's desire for power and behavior in exercising it?
9. What are the implications of organizational politics for organizational effectiveness?

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10

Nature of organizations

An organization can be defined as the patterned relationships among people who are engaged in mutually dependent activities with a specific objective. Formal organizations, such as business firms, hospitals, schools, prisons, labor unions, and government agencies, occupy a dominant position in today's highly specialized and technologically advanced society. The study of organizations is an interdisciplinary effort involving diverse fields, such as anthropology, economics, management, political science, psychology, and sociology. Behavioral scientists from these various fields have contributed toward the development of theories to describe and explain the structure and processes of organizations. In this chapter we will examine the essential features of organizations, including organization structure. In the next chapter, we will discuss various prescriptive theories and their implications for the design of effective organizations.

ORGANIZATIONS AS OPEN SYSTEMS

The best available conceptual framework for describing an organization is in terms of an "open system." A "system" is the arrangement and relationships among component parts that operate together as a whole (Katz & Kahn, 1966). Each component is a subsystem that has some system properties of its own. There is usually an elaborate web of causal connections among the components of a system. When a change occurs in one component, it will set off a chain of reactions in other components. Because of the complexity of the relationships, it is sometimes difficult to predict the eventual state of each component, including the one that was originally changed.

Input–transformation–output cycle

A system is "open" if it has transactions with the environment in which it exists. Transactions between an organization and its environment involve "inputs" and "outputs." Inputs are usually in the form of information, energy, money, personnel, materials, and equipment that are received by the organization from the environment. Outputs from the organization to the environment can take many forms, depending on the nature of the organization. Most of the outputs are derived from inputs that have been transformed by the organization. For example, manufacturing firms transform raw materials into industrial or consumer products. Educational institutions transform uneducated persons into more educated ones. Hospitals transform unhealthy persons into more healthy ones. Other outputs besides the major products or services of an organization include waste products from the transformation process and money paid for the inputs of labor, supplies, equipment, and energy. The product or service provided by a business organization is exchanged for money inputs, which are used in turn to pay for other necessary inputs. Thus the cycle of inputs, transformations, and outputs is continually repeated. Organizations that do not sell their products or services, such as public schools, museums, and libraries, must rely on periodic infusions of income from other sources (e.g., government funding, donations, member contributions).

Just as with biological organisms, the survival and growth of an organization depends on a favorable ratio of inputs and outputs. In terms of funds, the organization must receive at least as much as it expends in the transformation process and the maintenance of itself. If there is an excess of monetary inputs (i.e., the organization earns a profit), the excess can be used as a reserve against hard times or for the expansion and growth of the organization. If it cannot operate efficiently, the organization can only survive by finding someone to subsidize it. In addition to monetary inputs, the organization must be able to obtain adequate inputs of other types—especially labor, energy, and supplies—to maintain itself.

Organization goals

The behavior of an organization, like that of advanced biological organisms, is goal-directed rather than purely reflexive or random. Organizations usually have one or more formal, explicit goals. There may also be informal, implicit goals that can be inferred from organizational decisions and actions. An organization's central goals and the strategy chosen to attain them are the result of a political decision process. Organization members with substantial influence, such as higher-level executives and administrators, frequently disagree about goals and priorities. Such conflicts are resolved through a process of persuasion, bargaining, coalition formation, and power plays (Cyert & March, 1963).

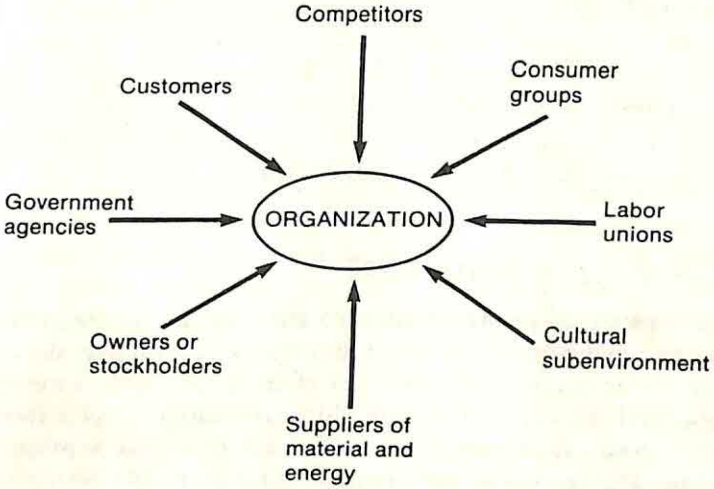
One central goal of nearly all organizations, whether explicit or implicit, is survival. If an organization achieves the original objectives for which it was created, or if these become incompatible with survival, new objectives may be found to replace them. For example, an organization established to raise funds for research on a certain disease is unlikely to disband after the disease has been conquered. Instead, the organization will probably evolve new objectives, such as other diseases to fight. Similarly, a business organization with an obsolete product or service may try to branch into other products or services rather than passively accepting bankruptcy or dissolution.

The major objectives of an organization are related to its input-transformation-output cycle. For example, a manufacturing firm makes products to sell at a profit. The firm's goals are likely to include such things as increased profits, increased market penetration, higher sales, and development of new markets. A business organization may also have supplementary social goals that are not directly related to its primary transformation process, such as promoting the welfare of its employees or contributing to the development and welfare of the local community. In some cases, specific functional or social goals are set as a result of external pressure from governmental agencies or political pressure groups. For example, business organizations have recently been required to establish an equal employment opportunity goal (see Chapter 15). Another example is provided by the automobile manufacturing companies, which have been forced to establish auto safety, pollution reduction, and gas mileage goals for the design of new cars.

Environmental influences

Many economic, political, cultural, and scientific developments in the external environment can affect an organization's goals or disrupt the regular input-transformation-output cycle. Major environmental elements affecting a business organization are shown in Figure 10–1. Customers and competitors are key determinants of the market demand for the organization's products or services. Suppliers and competitors for sources of supplies and labor are principal determinants of whether the organization can obtain an adequate amount of these inputs. Government regulatory agencies, owners or stockholders, creditors,

FIGURE 10–1
Multiple environmental influences on an organization



labor unions, and consumer groups exert conflicting pressures on the organization and influence its goals and activities Finally, the values and behavior of organization members are shaped by their cultural environment.

Adaptation to environmental change

Because an organization is dependent on the environment in so many ways, it must adapt to changes in the environment in order to survive and prosper. Thus, it is essential to monitor outside events and develop plans to cope with relevant changes. The more unstable and unpredictable a certain sector of the environment is, the more important it is to monitor that sector closely, especially when the consequences of events are momentous ones. For example, manufacturing firms with a dynamic and unpredictable market must frequently monitor customer reactions and the actions of competitors.

The survival of many types of organizations that are not subsidized depends in large part on the efficiency of their transformation process. These organizations seek to develop rational procedures for minimizing costs and using people, equipment, and other resources in the most efficient manner. Greater efficiency can be achieved in the transformation process when there is a stable supply of inputs and a fairly stable and predictable demand for the organization's products or services. Thus organizations try to insulate their core transformation process from fluctuations in the input supply or output demand. Organizations attempt to gain some control over the relevant environmental events, to minimize their dependence on unpredictable suppliers and customers, and to "buffer" the effects of environmental events that cannot be controlled or avoided (Thompson, 1967). For example, a power-generating company may attempt to ensure a regular supply of coal by buying it from more than one coal company, by making long-term contracts for future supplies, by stockpiling supplies, or even by acquiring ownership of its own coal company.

ORGANIZATION STRUCTURE

The capacity of an organization to react quickly to environmental threats and maintain an efficient ratio of outputs to inputs depends in part on its "structure." The structure of an organization is the pattern of prescribed roles and role relationships, the allocation of activities to separate subunits, the distribution of authority among administrative positions, and the formal communication network. In effect, structure is the formal plan for achieving an efficient division of labor and effective coordination of member activities.

Since the structure of an organization consists of role relationships and prescribed interactions rather than physical things like buildings and equipment, it has been difficult to find ways to describe and classify different structures. Various organization theorists have proposed somewhat different sets of structural dimensions. We will examine several structural attributes that have been frequently discussed in the management and organization theory literature.

Vertical differentiation and the authority hierarchy

In large organizations, the authority for making key policy decisions is usually assumed by a small group of persons who are appointed by the owners, elected by the members, or who emerge on top after repeated power struggles. Many kinds of organizations have a board of directors, or a board of trustees, or an elected legislative body to share ultimate authority with a designated chief executive officer (CEO). For example, in business corporations, there is usually a board of directors. The chief executive officer may be either the chairman of the board or the president.

The larger an organization grows, the more intermediate levels of managers are added to assist the top executives in coordinating and controlling the behavior of the nonsupervisory members of the organization. This process of "vertical differentiation" results in an "authority hierarchy" with two or more levels of authority.

Span of control

The number of authority levels in an organization will depend in part on the "span of control" at each level. Span of control is the number of subordinates a manager is responsible for supervising. Depending on the amount of coordination and direction necessary to ensure that subordinates perform their roles effectively, there is a limit to the number of subordinates a manager can handle. When the nature of the task and the subordinates is such that a large span of control is feasible, fewer first-line managers are necessary than when only a small span of control is feasible. For example, consider an organization with 64 nonsupervisory employees. The number of first-line managers needed is 4 when the span of control is 16, 8 when the span of control is 8, and 16 when the span of control is 4 subordinates (see Figure 10–2).

Span of control considerations also apply to the coordination and control of the first-line managers by the next-higher authority level. If there are more first-line managers than the chief executive can handle, it will be necessary to create another level of managers between the CEO and the first-line managers. For example, the executive with 16 first-line managers may find it advisable to add some middle managers to the authority hierarchy, as shown in Figure 10–3.

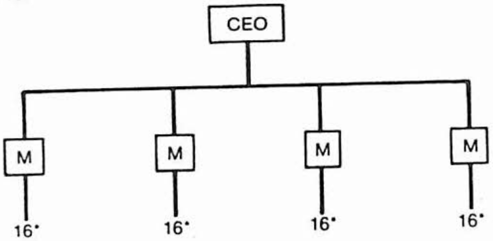
As the examples demonstrate, for a given number of nonsupervisory employees, the smaller the average span of control, the more authority levels will be needed. The organization represented by Figure 10–2*B* has an average span of eight, which results in two authority levels and a 9:64 ratio of managers to nonsupervisory employees. The "taller" organization represented by Figure 10–3 has an average span of four, which results in three authority levels and a 21:64 ratio of managers to nonsupervisory employees. Since administrative costs are greater for a tall organization with proportionally more managerial personnel, it is economical to make each manager's span of control as large as possible. On the other hand, the larger the span of control, the greater the risk of reduced control and coordination.

The feasible span of control for a manager will depend on several factors (Bell, 1967; Steiglitz, 1962; Udell, 1967):

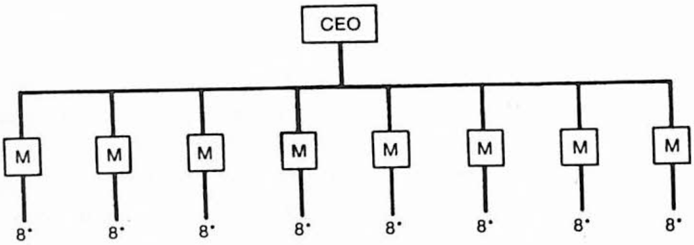
1. *Complexity and repetitiveness of subordinate tasks.* The more simple and repetitive the tasks are, the easier it is to supervise subordinates, especially when standardized work procedures have been established.
2. *Similarity of subordinates' tasks.* The feasible span of control is smaller when subordinates have dissimilar tasks. This is because the manager cannot readily become an expert in the knowledge of each task.

FIGURE 10–2
Span of control for first-line managers

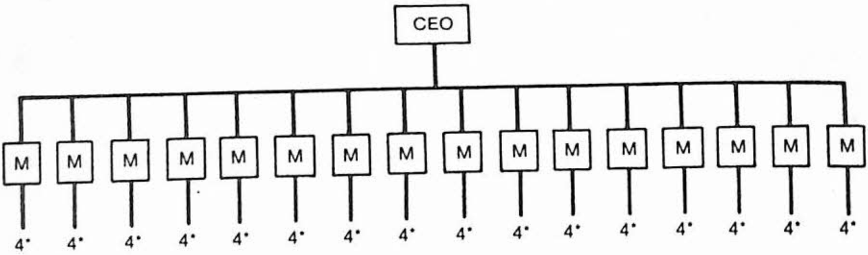
A. Span of control is 16:



B. Span of control is 8:



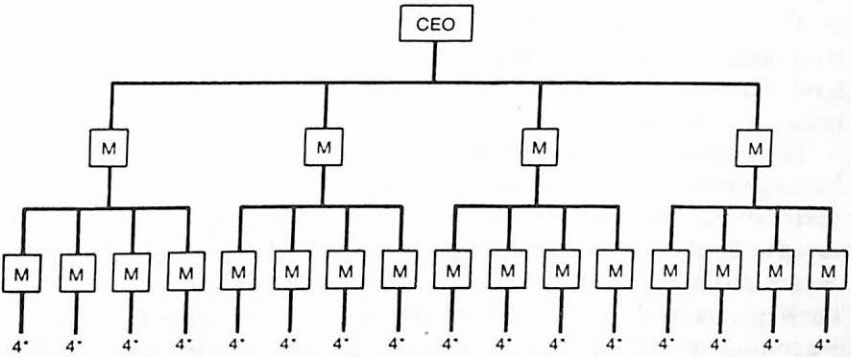
C. Span of control is 4:



* Nonsupervisory employees.

3. *The skill and motivation of subordinates.* Less supervision is necessary when subordinates are competent and highly motivated; so it is feasible to have a larger span of control.
4. *Degree of interdependence among subordinate roles.* When subordinates have highly interdependent task roles, more coordination is necessary, and the manager cannot handle as many subordinates.
5. *The proximity of work locations.* It is more difficult to supervise subordinates who work in widely dispersed locations, especially if communication channels are limited and the manager must travel from location to location to monitor subordinate performance.
6. *The capacity of the manager to supervise immediate subordinates.* A wider span of control if feasible if a manager has a great deal of skill and

FIGURE 10–3
Authority hierarchy with three authority levels and a uniform span of control of four subordinates



* Nonsupervisory employees.

energy and is not required to devote much time to other administrative functions, such as public relations or coordination with other subunits.

In addition to the kinds of factors just mentioned, the actual span of control for each manager in an organization will reflect less rational considerations, such as a power struggle among some managers to expand their domain of authority. Since the feasible span of control depends on so many different factors, it is not surprising that the actual span of control in an organization varies for managers of different subunits and for managers at different levels in the authority hierarchy. Unlike our hypothetical examples, there is not likely to be a uniform span of control or a uniform number of authority levels for each major subunit of the organization. For example, in a manufacturing company, there may be a large number of production employees and several levels of middle managers under a production vice president. In the finance department, there may be a much smaller number of nonsupervisory employees and only one level of management between them and the finance vice president.

Centralization of authority

When additional levels of management are created in an authority hierarchy, some of the authority possessed by the top executives is delegated to the intermediate managers so that they can carry out their responsibilities. Delegation can take different forms. In its most restricted form, the lower-level manager can only deal with problems for which there are prescribed rules and procedures, and any exceptions must be referred to higher authority levels. In its least restricted form, the lower-level manager is free to take actions within certain broad limitations and guidelines, although he or she must report periodically on the consequences of the decisions. Between these extremes are intermediate degrees of delegation, as for example, when the lower-level manager can make a decision but must clear it with the boss before taking action.

The extent to which authority is centralized in an organization can be measured in terms of the number and importance of delegated decisions and the level in the authority hierarchy to which they are delegated. All organizations can be placed along a centralization-decentralization continuum. In a highly centralized organization, most decisions are made at the top level, and lower-level managers have little discretion to act on their own initiative. In a highly decentralized organization, certain types of decisions are still made at the top level (e.g., general policy, broad goals, global planning and strategy formation), but authority to make many other kinds of decisions is delegated to middle- and lower-level managers.

Centralization has certain potential advantages (Flippo & Munsinger, 1975; Melcher, 1976; Webber, 1975):

1. The top executives are more aware of the overall needs of the organization and are more likely to make decisions in the organization's best interests.
2. There is greater uniformity of policy and action when decisions are made by the executive office.
3. Decisions can be made with the aid of a central staff of specialized experts. There is less risk of mistakes and bad judgment by lower-level managers who lack adequate decision skills and initiative.
4. It is easier to maintain the secrecy of strategic plans and proposals.

On the other hand, decentralization has certain potential advantages:

1. Operating decisions for geographically dispersed subunits are made by the managers most knowledgeable about "local" conditions.
2. Pressing problems faced by lower-level managers can be dealt with more quickly when they have authority to make immediate decisions rather than having to refer the problems to higher levels.
3. The motivation and enthusiasm of lower-level managers is greater when they are entrusted to make decisions rather than simply executing orders and implementing plans made at a higher level.
4. Making decisions provides excellent training for lower-level managers in preparation for their advancement to higher positions.

5. Decentralization of operating decisions allows top executives more time for policy formation and long-range planning.

Formalization

The degree of rule orientation and reliance on formal, written communications in an organization is referred to as "formalization" (Reimann, 1973). Highly formalized organizations have detailed job descriptions and elaborate rules and regulations. An extensive amount of paperwork (red tape) is required, such as memos, forms, and reports. Work procedures are specified in detail, and behavior is likely to be closely monitored to ensure compliance with rules and regulations. Managers are required to keep detailed records on expenditure of funds and use of other resources. Managers are also expected to submit written reports regularly on the operations of their subunit.

Formalization usually involves considerable standardization as well as specification of work roles. It is easier and less costly to develop standardized rules and procedures when there are clusters of identical jobs rather than many unique jobs. Standardized facilities, equipment, supplies, and outputs (e.g., products or services) also make it easier to specify in detail how each person will do the work. For example, in MacDonald's restaurants, a high degree of formalization is possible because each restaurant has the same kind of equipment, supplies, and menu.

Formalization serves to regulate the behavior and limit the discretion of organization members. There are several potential benefits to be gained from high formalization:

1. Formalization facilitates coordination by reducing the variability of behavior for persons with interlocking work roles.
2. Formalization reduces role ambiguity by clearly specifying each person's duties, responsibilities, limits of authority, and role requirements.
3. Formalization facilitates control by providing well-defined performance standards for use in monitoring employee performance.
4. Formalization reduces labor costs by reducing the amount of skill and discretion needed to do the work.
5. Formalization of uniform rules and procedures helps to ensure equal treatment of clients and customers.
6. Formalization provides employees with protection from arbitrary treatment by superiors, since duties and performance requirements are clearly specified.

On the other hand, formalization may have some unfavorable consequences:

1. Formalization tends to focus attention on means rather than objectives, fostering rigidity of behavior and obsession with rules.
2. Formalization limits the discretion and autonomy of an employee, making the job less interesting and challenging.
3. Formalization requires that time and effort be allocated to developing rules and standardized procedures, and new staff positions may need to be created for this purpose.
4. Formalization limits adaptation to changing conditions and unique client needs.
5. Formalization reduces opportunities for lower-level employees to learn managerial skills involved in problem solving and decision making, thereby limiting development of potential candidates for higher-level managerial positions.

Departmentation

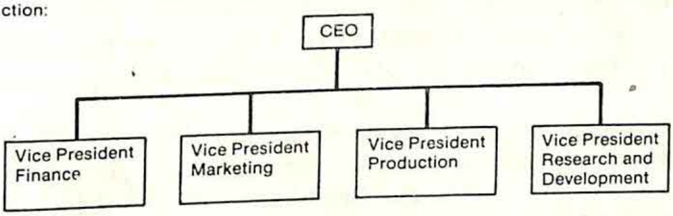
Departmentation is the grouping of individual positions and activities into separate subunits of the organization. At each authority level where there is more than one manager needed, some basis must be found to determine who will be responsible for which activities. Just as there is role specialization in the design of individual jobs, so too can the concept of specialization be applied to subunit formation at each authority level. The importance of departmentation is greatest at the upper level, immediately under the chief executive officer. Subunit formation at this level will be referred to as "primary departmentation." Even at lower levels, the type of subunits created will affect coordination, communication, employee attitudes, and goal orientation.

BASES FOR PRIMARY DEPARTMENTATION There are several bases used for establishing separate departments at the upper level, including: (1) function, (2) product or service, (3) client or type of customer, and (4) geographical location. Departmentation by function means that persons performing the same function are grouped together in a primary department. For example, in a manufacturing company the major functions usually include production, marketing, finance, and research. The functions in a retail chain store usually include merchandise, marketing, finance, distribution, real estate, and personnel. In an insurance company major functions include such things as underwriting, claims, marketing, investments, and finance. An example of functional departmentation in a manufacturing company is shown in Figure 10–4A.

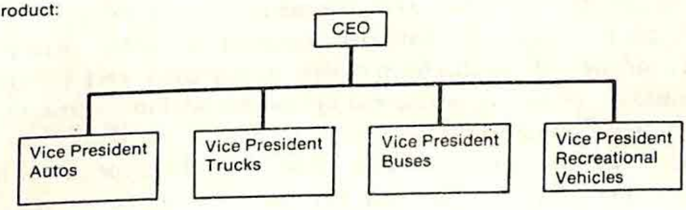
Departmentation according to product or service is feasible if an organization offers a wide variety of different products and/or services and there are separate groups of functional specialists (e.g., produc-

FIGURE 10–4
Examples of primary departmentation

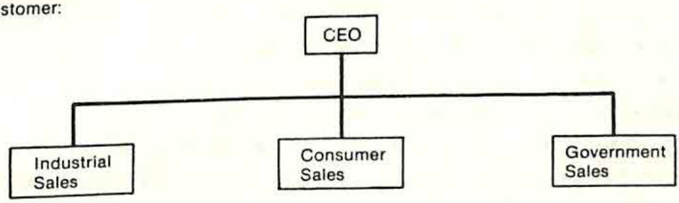
A. By function:


CEO
Vice President Finance
Vice President Marketing
Vice President Production
Vice President Research and Development

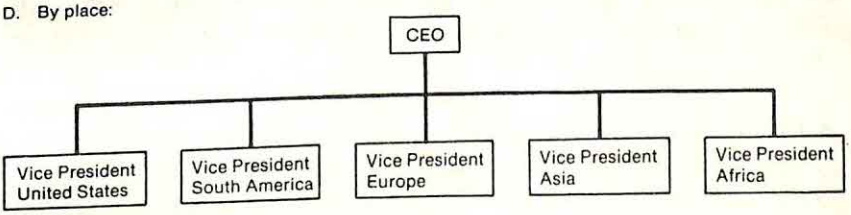
B. By product:



C. By customer:



D. By place:



tion, sales) assigned to each product or service. An example of primary departmentation on the basis of product is shown in Figure 10–4B. In this example, the vice president of the automobile division is responsible for all activities necessary to design, produce, and market cars. The other vice presidents have similar responsibility for their respective products. With this form of departmentation, certain functions that are not directly involved in producing and selling the product may be retained as a separate functional department at the upper level (e.g., finance).

Departmentation according to customer or client is possible when an organization has several distinct clients or several mutually exclusive categories of customers. For example, an advertising company with several major clients may establish separate subunits containing all of the functional specialists needed to service a client. A manufacturing company with several distinct markets for its products may form primary departments on the basis of customer category, as in Figure 10–4C.

Departmentation according to geographical location ("place") is possible with organizations that have several, widely dispersed facilities that are essentially self-contained and independent in their operations. Some examples are a chain of retail stores, service outlets, and professional offices in different cities. Departmentation by place is also appropriate for large multinational organizations with operations in several countries. With this form of departmentation, each department is responsible for all organizational operations within its geographical territory (see Figure 10–4D).

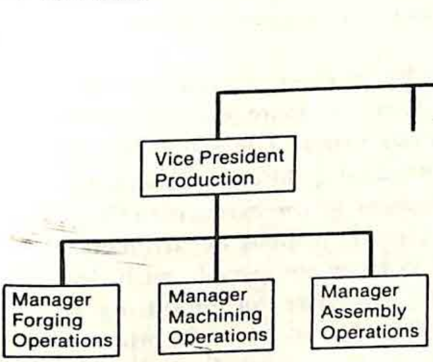
SECONDARY DEPARTMENTATION Just as at the upper level in the authority hierarchy, the basis for forming subunits at the next level down (i.e., within the primary departments) will depend on the nature of the organization and the scope of its activities. This 'secondary departmentation" may be based on function, product or service, customer or client, or place, if any of these bases is appropriate. The basis for secondary departmentation need not be the same within each primary department. For example, a manufacturing company with functional primary departments may have functionally specialized subunits within its production department, and product subunits within its marketing department. A few examples of organizations with different forms of secondary departmentation are shown in Figure 10–5.

At the lowest levels of management, the basis for grouping activities is usually functional specialization. Subunits of nonsupervisory employees under the direction of a first-line supervisor are usually located in the same office or work area. The employees may have identical jobs, or they may perform different roles as part of a team that is responsible for one step in the production of a product or the provision of a service. In organizations with departments that operate both day and night, there are usually parallel subunits for different time periods (e.g., day shift, evening shift, graveyard shift).

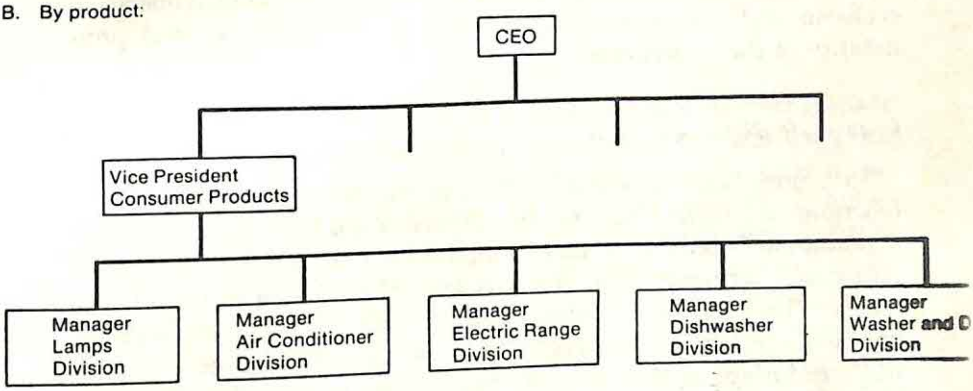
COMPARATIVE ADVANTAGES OF FUNCTIONAL DEPARTMENTS Departmentation on the basis of function offers several advantages (Kover, 1963; Litterer, 1965; Walker & Lorsch, 1968). The interaction among similar specialists facilitates mutual assistance and sharing of ideas. There is likely to be greater professional development, more accurate evaluation of individual competence, and greater satisfaction with coworkers. A functionally specialized department provides more opportunity for advancement within a person's specialty area, without the

FIGURE 10–5
Examples of secondary departmentation

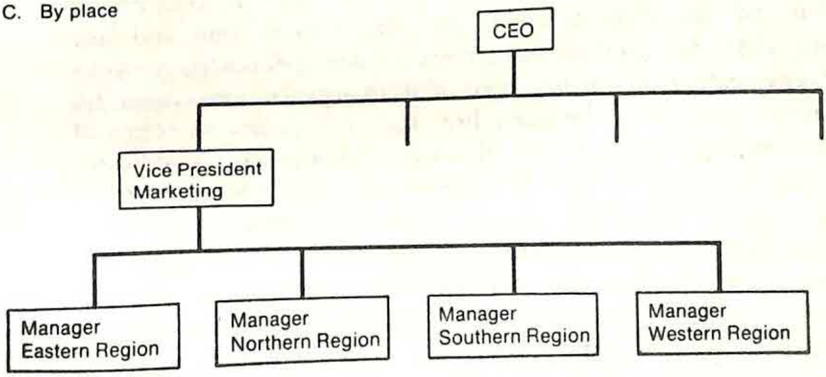
A. By function:


CEO
Vice President Production
Manager Forging Operations
Manager Machining Operations
Manager Assembly Operations

B. By product:


CEO
Vice President Consumer Products
Manager Lamps Division
Manager Air Conditioner Division
Manager Electric Range Division
Manager Dishwasher Division
Manager Washer and D
Division

C. By place



necessity of becoming a general administrator of several specialty areas. Economies can result from greater use of specialized personnel and special-purpose equipment. Moreover, there is usually less duplication of effort than in organizations with product or customer departmentation.

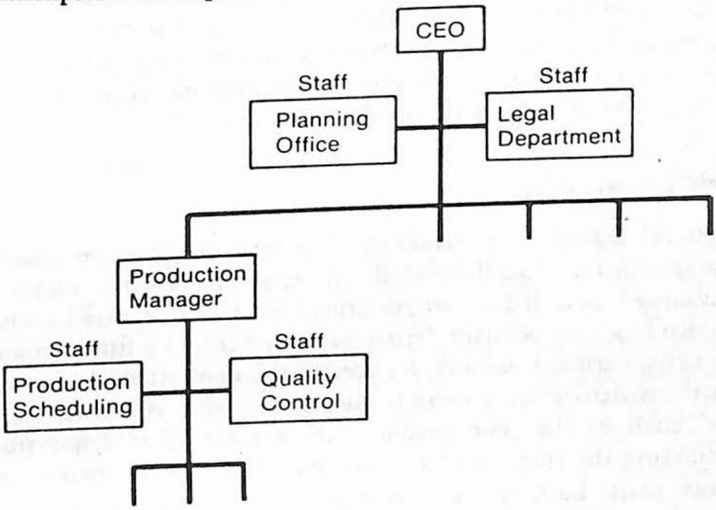
On the other hand, departmentation by product, service, or customer also offers certain advantages. There is more concern with product goals rather than narrow functional issues. The experience of running a product department and coordinating different functional specialists prepares managers for advancement to the executive office, where a general orientation is necessary. Finally, primary departmentation by product, customer, or location is more compatible with decentralization. Since all major functions necessary for producing a product or providing a service are self-contained in each primary department, the "profit center" concept can be applied. Each department manager can be allowed to make most of his or her own operating decisions and can be held accountable for the efficiency and profitability of the department.

Line-staff differentiation

In a pure "line organization," all of the necessary administrative functions are carried out by the regular managers. In a "line-staff organization," certain of these functions are assigned to specialists called staff personnel. It is the duty of staff personnel to provide the regular "line managers" with assistance and advice. Staff functions typically involve such things as personnel administration, planning and scheduling, quality control, engineering services, legal counsel, and public relations (see Figure 10–6). However, there is considerable confusion and disagreement about the definition of staff and line functions, and some functions that are regarded as staff functions in one kind of organization are line functions in other organizations. Actually, the principal distinction between line and staff is not in terms of functions performed, but rather in terms of authority (Woodward, 1965). Staff personnel have no direct authority over the subordinates of the line manager whom they advise. Officially, a staff person is not allowed to direct line personnel except when specifically authorized to do so by the appropriate line manager. In practice, however, staff personnel often exercise direct influence over line personnel by virtue of their expertise, professional status, control over information, or close connections with high-level line officers (Filley, House, & Kerr, 1976).

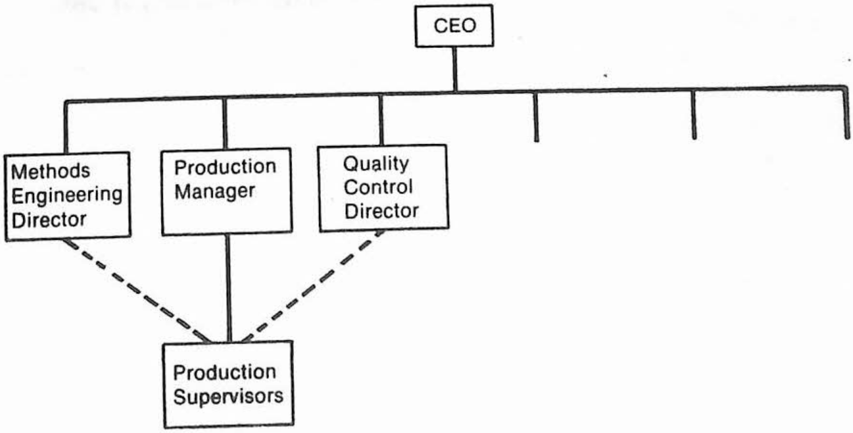
As an alternative to a line or a line-staff form, some organizations have special administrative subunits or offices with limited authority over lower-level employees. That is, some administrative or support

FIGURE 10–6
Examples of staff positions



function is removed from the sphere of authority of a line manager and established as a separate office. The director of the new office is given direct authority over lower-level employees, but only in certain narrowly defined matters ("functional authority"). For example, if production does not place enough emphasis on maintaining quality, a quality control office may be created and given functional authority over quality standards and inspection (see Figure 10–7). Similarly, an engineering methods office may be created and given authority to design jobs and develop work procedures. The director of an office with functional authority typically reports to the same boss as the line

FIGURE 10–7
Examples of functional authority in special administration offices



manager who originally possessed the director's authority. The director may or may not have subordinate specialists to give assistance. This kind of special administrative office can be created at the same level as the primary departments or at a lower level within the primary departments, depending on how important its function is and how much authority is needed to carry out this function.

Matrix organization

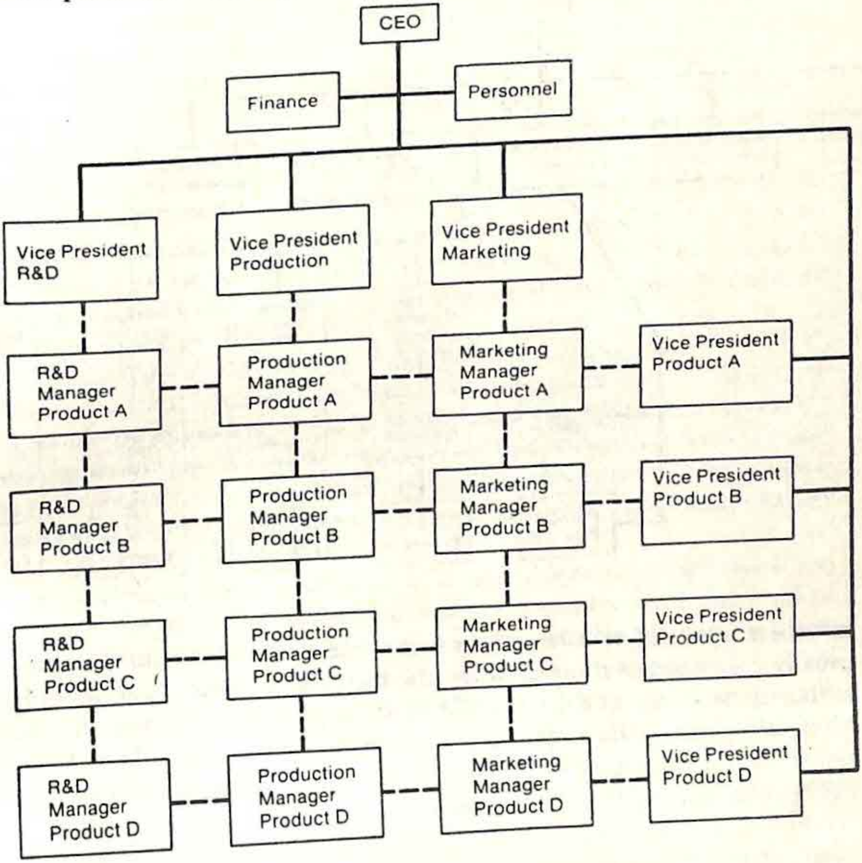
A novel organization structure that was designed to obtain the advantages of functionally specialized departments while avoiding the disadvantages is called a "matrix organization." In a matrix organization, two bases for primary departmentation (usually function and one other basis, such as product), are used at the same time. An example of a matrix structure for a manufacturing company is shown in Figure 10–8. Each of the four product vice presidents is responsible for coordinating the three functions involved in attaining their respective product goals. Each of the three functional vice presidents supervises and coordinates any lower-level personnel who are performing their respective functions. In each cell of the matrix is a functional manager assigned to a specific product. These subunits are under the dual authority of the corresponding function vice president and product vice president. Thus, for example, the vice president for product A and the production vice president both have authority over the production manager for product A.

Teams and committees

Although a matrix structure has certain advantages, new problems are created, such as role conflict, confusion due to overlapping jurisdiction, and the expense of a dual set of upper-level managers. Less complex and more flexible structural devices, such as teams and committees, are often able to accomplish the same objectives at less cost (Galbraith, 1973).

Organizations with functional departments can form temporary project teams or "task forces" to carry out special projects requiring close coordination and joint problem solving among functional specialists. Examples of projects suitable for a team approach include bringing a new product into production and designing a unique product to meet customer specifications. A project team has members from relevant functional departments and is directed and coordinated by a project manager. There are likely to be some team members who are assigned full time and other members who only participate part-time and may belong to more than one team. The composition of the team may

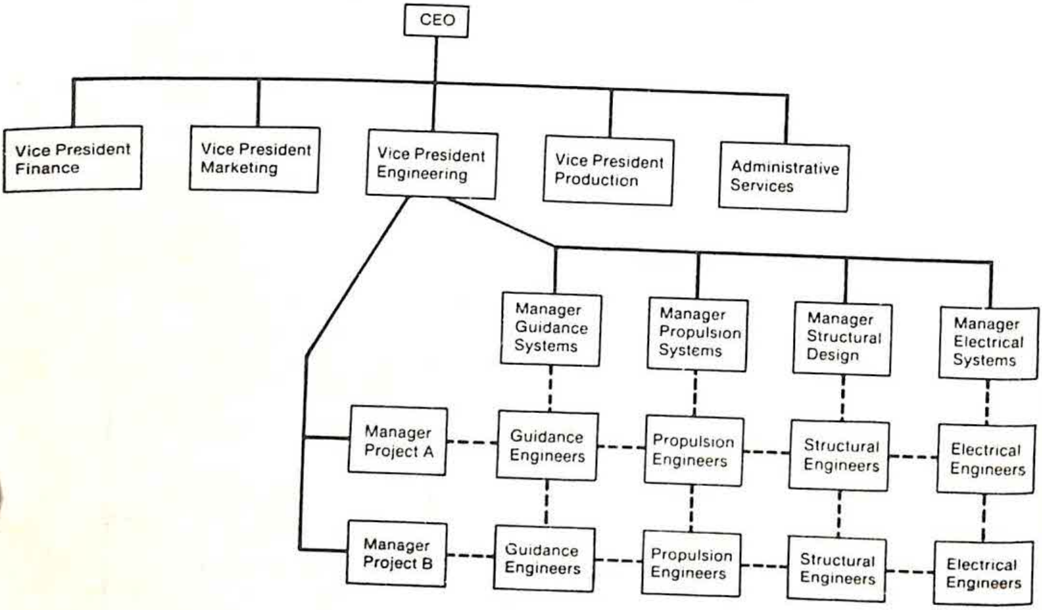
FIGURE 10–8
Example of a matrix organization


CEO
Finance
Personnel
Vice President R&D
Vice President Production
Vice President Marketing
R&D Manager Product A
Production Manager Product A
Marketing Manager Product A
Vice President Product A
R&D Manager Product B
Production Manager Product B
Marketing Manager Product B
Vice President Product B
R&D Manager Product C
Production Manager Product C
Marketing Manager Product C
Vice President Product C
R&D Manager Product D
Production Manager Product D
Marketing Manager Product D
Vice President Product D

change somewhat over the course of the project if the importance of various functions changes at each stage. Figure 10–9 provides a simplified example of an aerospace organization with project teams for the design and development of missiles and aircraft. When a project is completed, the team is disbanded, and team members return to their regular duties in their respective functional departments or are assigned to new project teams.

A committee is a group of persons from the same subunit or from different subunits who meet periodically to coordinate subunit activities and solve joint problems. Committees are often formed when coordination and joint problem solving are too complex to be carried out effectively either through the regular authority hierarchy or through informal lateral communication. A committee may be formed at any level in the authority hierarchy, and it may contain organization

FIGURE 10-9
Example of a project team structure within an engineering department



members from different levels. As is the case of teams, committees are usually composed of those persons who have the knowledge, skill, and authority necessary to solve specific kinds of problems or make certain kinds of operating decisions (e.g., coordination and scheduling decisions). Committees may be either temporary or permanent additions to the regular structure of the organization.

Making teams and committees effective

Galbraith (1973) has reviewed the aspects of group composition and procedure that are necessary for a team or committee to be effective in achieving lateral coordination and joint problem solving.

1. *Members should perceive their participation to be important and personally beneficial.* Serious participation is more likely if formal rewards (e.g., pay increase, promotion) are based in part on committee performance. Committee duties are more likely to be considered important if high-status persons are assigned to the committee on a long-term basis, rather than rotating membership frequently or selecting low-status employees as members.

2. *The group should include some of the persons who will be responsible for implementing its decisions.* As noted earlier, when there is a complete separation between decision makers and the persons responsible for

implementing decisions, communication problems and lack of commitment are likely.

3. *Members should have knowledge and information relevant to the decision.* All departments that would be significantly affected by the decisions should be represented, and members should be selected from the appropriate level in the authority hierarchy. A common mistake is to select persons from too high a level who lack sufficient knowledge of technical processes to represent their functional specialty.

4. *Members should have sufficient authority to commit their respective departments.* A team or committee that is responsible for making decisions will not be able to carry out its responsibility unless members have some authority to commit their respective departments in matters relating to the decisions.

5. *Committee decisions should be integrated with regular subunit decisions.* When certain decisions are delegated to a committee, it is essential to keep the subunits that are represented by committee members fully informed, so that committee decisions will be compatible with subunit actions and decisions. It is often advisable to schedule meetings in each subunit following committee meetings to ensure adequate communication of relevant information.

6. *The influence of members on decisions should be based on expertise.* If the team or committee must have members from more than one level of authority in order to include persons with relevant knowledge, care must be taken to avoid a situation in which the discussion is dominated by the members with higher authority. The group should explicitly establish the norm that influence will be based on relative knowledge rather than authority.

7. *Conflicts should be confronted and resolved with a problem-solving approach.* The group cannot make high-quality decisions if conflicts relevant to the decisions are avoided or smoothed over rather than being confronted and resolved through a problem-solving process (see Chapter 8).

8. *Members should have appropriate interpersonal skills.* In order to deal successfully with role conflicts, overlapping responsibility, status ambiguity, and interdepartmental conflicts that intrude into the committee processes, members should have appropriate traits and interpersonal skills.

PARTS OF AN ORGANIZATION

Much of the confusion about organization structure stems from the limitations of abstract structural concepts, such as centralization and formalization for describing something so complex and intangible as role relationships and interaction patterns. Mintzberg (1979) has proposed a model of key organization parts that can be used together with other structural concepts to help bring organization structure into clearer focus. According to Mintzberg, any large organization has five key parts, and these are shown in Figure 10–10.

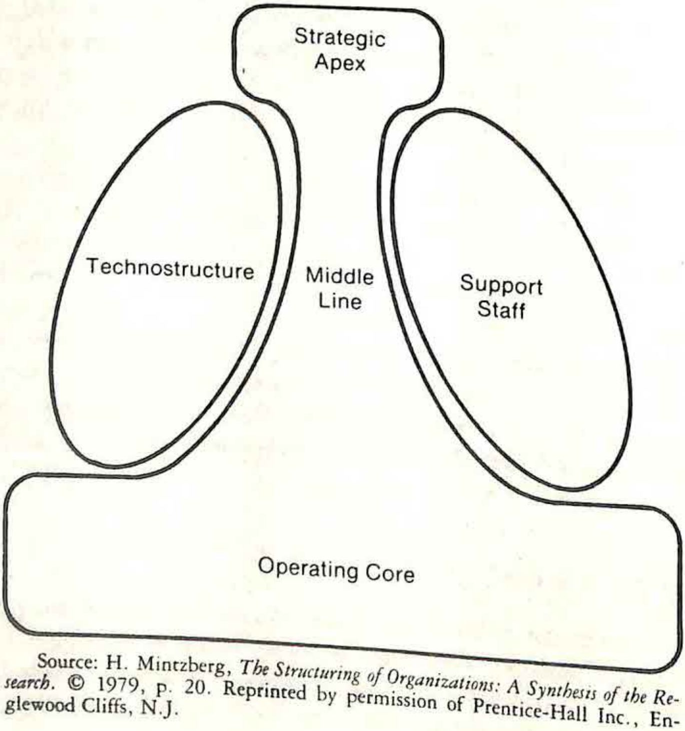
Operating core

The part of the organization concerned with carrying out the basic work of the organization is called the "operating core." This part is primarily concerned with transformation tasks involved in producing outputs from inputs. In addition, the operating core encompasses input tasks (e.g., purchasing, receiving), output tasks (e.g., sales, distribution), and direct support tasks (e.g., equipment maintenance).

Strategic apex

The "strategic apex" is composed of the chief executive officer and any other general managers or directors concerned with the overall mission of the organization, plus the secretaries, assistants, and other

FIGURE 10–10
The five basic parts of an organization



Source: H. Mintzberg, *The Structuring of Organizations: A Synthesis of the Research*. © 1979, p. 20. Reprinted by permission of Prentice-Hall Inc., Englewood Cliffs, N.J.

persons supporting these top executives. The functions of the strategic apex are to formulate policy, make strategic plans, allocate resources, modify the organization structure when necessary, direct the organization, and manage its relations with the external environment.

Middle line

In all but the smallest of organizations, the authority hierarchy includes middle managers to link the strategic apex with the operating core. The middle line includes first-line supervisors of the subunits in the operating core and all of the intervening managers with authority over the operating core, up to but not including top executives in the strategic apex. The middle line implements decisions made by the strategic apex, keeps the apex informed about operations, supervises and coordinates activities in the operating core, and achieves lateral coordination among the operating core subunits and between them and other parts of the organization.

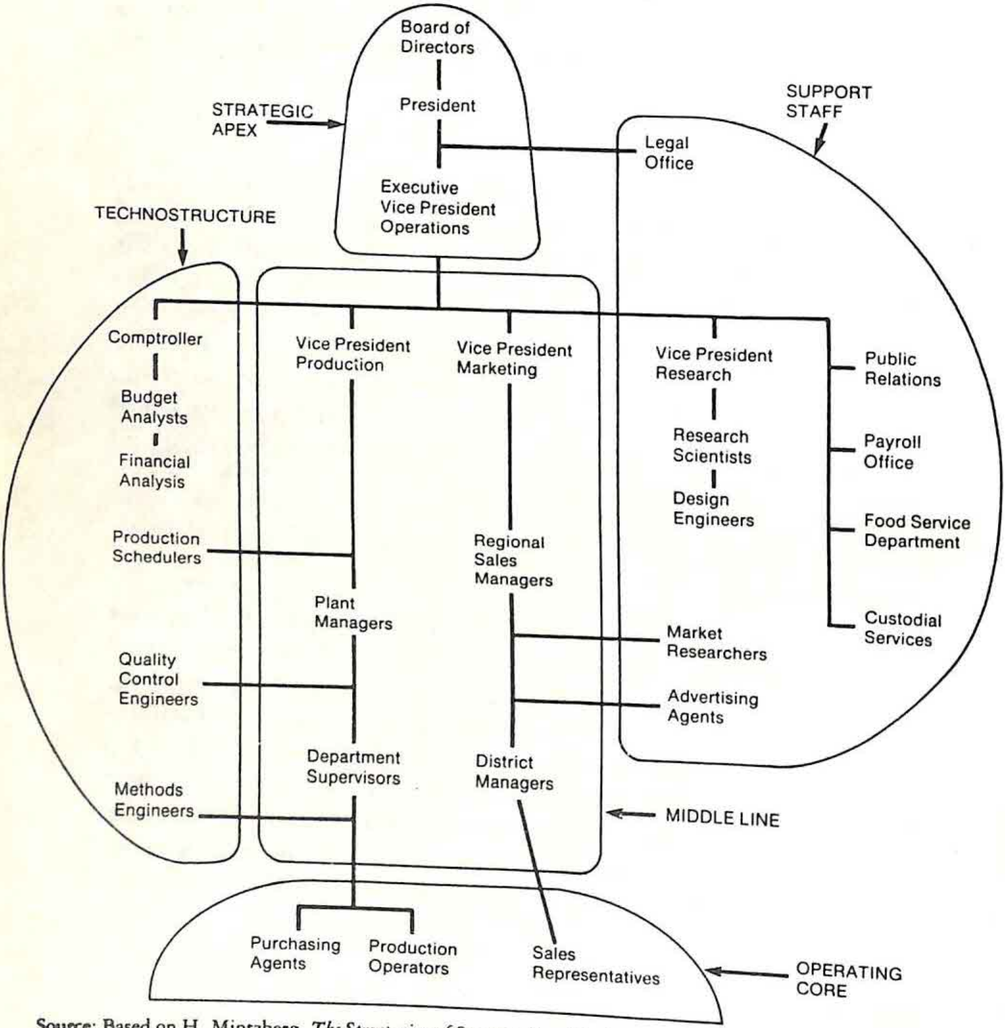
Technostructure

The function of the technostructure is to make the work of persons in other parts of the organization more effective. The technostructure includes any staff personnel who are given responsibility for designing work procedures (e.g., industrial engineers), planning work schedules (e.g., production schedulers), developing standards and controls (e.g., quality control engineers, budget analysts), and selecting and training employees (e.g., human resource management department). These staff personnel may be assigned to serve at any level of management, including the strategic apex (e.g., strategic planning analysts).

Support staff

The support staff consists of organizational subunits or individuals who provide indirect support to other parts of the organization. Support staff are not directly involved in doing the work of the operating core, nor do they determine how the work will be performed. Although these support services can usually be purchased from outside vendors, organizations often choose to hire their own support personnel. Examples of support units include the legal staff, cafeteria, mailroom, payroll department, public relations office, and research laboratory. Figure 10–11 shows a hypothetical manufacturing organization with examples of positions in each of the five key parts of the organization.

FIGURE 10–11
Parts of a manufacturing company with job titles in each part



Source: Based on H. Mintzberg, *The Structuring of Organizations* (Englewood Cliffs, N.J.: Prentice-Hall, 1979).

SUMMARY

An organization can be described as an open system that has transactions with its environment. In order to survive and prosper, an organization must maintain a favorable ratio of inputs to outputs. Necessary resource inputs must be obtained, and customers or clients must be found for the organization's products or services. If a stable input-transformation-output cycle can be maintained, more efficient transformation procedures can be developed. Thus organizations attempt to gain control over undependable sources of supplies and to insulate the core transformation process from any uncontrollable variations in input supplies or output demand.

The structure of an organization is one determinant of its capacity to function efficiently and adapt to the environment. Major aspects of structure include span of control and vertical differentiation, centralization of authority, formalization, line-staff differentiation, and type of departmentation.

There are several bases for departmentation at the primary and secondary levels. Subunits can be formed on the basis of function, product or service, client or customer, or geographical location. Functional departments have certain advantages and certain disadvantages in comparison with product, customer, and geographical departments. A matrix organization is a structural form designed to obtain the advantages of more than one type of departmentation. However a matrix structure has certain costs and limitations of its own. Other kinds of structural mechanisms designed to facilitate coordination and lateral communication include teams and committees.

Another way to analyze organization structure is in terms of its major parts. Mintzberg proposed that all large organizations have the following five parts: operating core, strategic apex, middle line, technostructure, and support staff. The relative size and importance of these organizational parts and their component positions vary somewhat from one organization to another.

REVIEW AND DISCUSSION QUESTIONS

1. Define or explain each of the following key terms: *open system, input, output, transformation process, organization structure, authority hierarchy, span of control, centralization, formalization, departmentation, functional specialization, line-staff differentiation, line authority, functional authority, matrix organization, teams, committees.*
2. What factors determine the feasible span of control for a manager?
3. What are the advantages and disadvantages of decentralization?
4. What are some different bases for departmentation?
5. What are the comparative advantages and disadvantages of departmentation based on function?
6. What are the reasons for establishing staff positions?
7. What is a matrix organization structure, and how does it differ from functional departmentation?
8. What are some factors that determine whether an organization is able to adapt and survive in a changing or hostile environment?
9. What are the advantages and disadvantages of formalization?
10. What are the five key parts of an organization according to Mintzberg?

11. In what part of the organization would each of the following academic positions be located according to Mintzberg: dean, librarian, president, professor, budget analyst, bookstore clerk, cafeteria worker, custodian?
12. What guidelines did Galbraith propose for making teams and committees more effective?

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11

Design of effective organizations

In the preceding chapter we described several important aspects of organization structure, including span of control and vertical differentiation, centralization of authority, formalization, departmentation, and staff-line differentiation. The structural features of an organization are, for the most part, a systematic and intentional design rather than a random pattern. Management usually attempts to organize in a way that will facilitate the attainment of organization goals. Since there are a vast number of structural variations possible, finding one that will be appropriate for a given organization is an exceptionally complex problem. Some of the questions that must be answered in organizing include the following:

1. What is the best basis for grouping activities at each level?
2. What is the maximum feasible span of control for each kind of subunit, and how many levels of authority should be created in each major department?
3. To what extent should related administrative functions be divided into separate staff and line roles, and what authority and status should be allocated to staff positions?
4. How much formalization should exist for positions at each level?
5. To what extent should authority be centralized or decentralized in the authority hierarchy?
6. What lateral communication channels and supplementary decision-making groups (e.g., teams, committees) should be established?

In order to answer such structural design questions, a number of prescriptive organization theories have been formulated, including (1) classical (or "traditional") organization theories, (2) humanistic organization theories, and (3) contingency theories of organization design. Each of these approaches is described in this chapter.

CLASSICAL ORGANIZATION THEORY

Several prescriptive organization theories and sets of organizing principles were proposed by individuals in different countries during the early half of this century, including "scientific management" (Taylor, 1911), "bureaucratic organization" (Weber, 1947), and "administrative management" (Fayol, 1929; Mooney & Reiley, 1939; Urwick, 1940). The organizing principles recommended by each of these "classical" organization theorists differed somewhat, but there was considerable convergence of viewpoints on most major issues. The basic approach favored by each theorist was to achieve internal organization efficiency by dividing tasks into specialized roles, devising detailed rules and procedures, and establishing an authority hierarchy with elaborate controls to ensure that the rules and procedures were followed. A set of organizing principles that reflects the general viewpoint of the classical theorists includes the following:

Division of labor. Tasks should be subdivided into specialized functions, and these should be assigned to persons with the required skills.

Clearly defined duties, rules, and responsibilities. Each person in the organization should have a clearly defined set of duties and responsibilities. At the lower levels, work should be simplified, and the one "best"procedure for performing each job should be determined and specified for the employee.

Unity of command. There should be a clear chain of command from the top to the bottom of the authority hierarchy. No person should receive orders from more than one boss, and there should be no overlapping of authority (or responsibility) at the same level.

Unity of direction. Jobs should be grouped so as to permit those with the same objective to be under the same plan and directed by one manager.

Narrow span of control. Each manager should be responsible for supervising only a small number of subordinates to ensure effective control and coordination of subordinate activities.

Authority commensurate with responsibility. The authority delegated to each manager should be sufficient for the manager to carry out his/her responsibilities.

The ideal organization prescribed by the classical theorists was quite bureaucratic, with a high degree of role specialization, work simplification, centralization of authority, and formalization. Since a small span of control was recommended, there must also be a "tall" authority hierarchy with a relatively large number of authority levels. Control was to be achieved through formal rules, role prescriptions, and work procedures, with compliance ensured by close supervision and a system of incentives and sanctions. Any coordination problems not covered by predetermined rules and standard procedures would be referred upward in the authority hierarchy to a person with the authority to make a decision.

Although the classical theorists recognized the comparative merits of different bases for departmentation, their prescriptions are biased in favor of the efficiency provided by functionally specialized departments (Miles, 1975). Certain structural arrangements, such as a matrix organization, project teams, or special administrative offices with functional authority, would clearly violate the "unity of command" principle. Thus the ideal organization designed by classical theorists would probably be a line or line-staff organization with functionally specialized subunits at most levels.

HUMANISTIC ORGANIZATION THEORY

Humanistic organization theories and organizing principles were initially formulated during the 1950s and 1960s. These theories reflect the influence of a growing humanistic movement and its concern for the physical and mental health and welfare of all individuals. The humanistic organization theories also reflect the influence of early research by psychologists and sociologists on group dynamics and human motivation. The famous Hawthorne studies (Roethlisberger & Dickson, 1939) revealed the existence of an "informal organization" that had been largely ignored by the classical theorists. Subsequent research confirmed that employees have motives besides the obvious need for economic subsistence and job security and demonstrated that informal behavior is vital for understanding organizational processes. The primary focus of the humanistic organization theorists was on human relations and the interaction between organization structure and human characteristics. The best-known humanistic theorists are Douglas McGregor (1960), Chris Argyris (1957, 1964), and Rensis Likert (1961, 1967).

McGregor's Theory X and Theory Y

McGregor (1960) pointed out that the kind of bureaucratic organization prescribed by classical theorists reflects a very negative view of human nature, which he labeled "Theory X." The emphasis on regulating the behavior of lower-level employees presumes that they are lazy, dislike work, have little ambition, avoid responsibility, lack creativity, and are motivated only by a desire for economic gain and security. McGregor proposed a completely different view of human nature, which he called "Theory Y." It assumed: Work is as natural as play or rest; people are motivated by other needs besides survival; and employees are capable of self-direction, initiative, and creativity. According to McGregor, organizations will be more effective if designed to be compatible with Theory Y assumptions about human nature. To achieve this objective, he proposed the use of participative management, job enrichment, and management by objectives. These practices are described in other chapters.

Argyris' personality and organization theory

The incompatibility between human nature and a bureaucratic organization was also the major theme of Argyris (1957, 1964). He proposed a theory of personality and organization with the central postulate that effective organizations have a structure compatible with member characteristics. Argyris pointed out that there is a normal sequence of human development from infancy to mature adulthood. Specifically, a person becomes less passive, acquires the capacity for a greater variety of behavior, develops deeper and more lasting interests, moves from a short time perspective to a long time perspective, develops from a lack of self-awareness to a sense of self-identity, and moves from complete dependence toward self-reliance. A bureaucratic organization structure forces most employees to be passive, dependent, and subservient, thereby frustrating employees who desire meaningful work, self-reliance, and psychological growth. The reaction of frustrated employees, including lower- and middle-level managers as well as nonsupervisory employees, will be one or more of the following:

1. Physical withdrawal (e.g., absenteeism or turnover).
2. Psychological withdrawal (e.g., apathy, daydreaming, drugs).
3. Aggressive acts and informal group resistance to controls.
4. Fixation on instrumental rewards (such as pay and benefits) together with de-emphasis of unobtainable outcomes (such as achievement, recognition, and accomplishment of meaningful tasks).

In effect, the structure of an organization designed according to the prescriptions of classical organization theory results in a self-fulfilling prophecy. After being exposed to such an organization for a long period of time, employees become what Theory X assumes they already were.

If top management reacts to employee resistance and aggression by a further tightening of controls (e.g., more rules and reports, closer supervision, additional standards and sanctions), the frustration of employees will merely be increased. The result of incompatibility between organization structure and member needs is lower organizational effectiveness. Less human energy will be applied to productive effort, and there will be a lack of initiative in solving problems.

In order to achieve a better fit between organization structure and member needs, Argyris recommended that an organization should have flexible roles, open communication, and reliance on self-direction. He also advocated the creation of such supplementary structural forms as project teams and a council of representatives from each level and major subunit to make decisions that are not appropriate for the regular authority hierarchy. The kind of organization favored by Argyris would be achieved by the use of change programs such as sensitivity training, job enrichment, and organization development. These programs are described in other chapters.

Likert's Systems 1–4 theory

A third humanistic organization theorists who has had a major influence is Likert (1961, 1967). His theory is based largely on research conducted during the 1950s to discover differences between effective and ineffective managers. Likert concluded from this research that managers who acted in accordance with classical organization theory were less effective than managers who followed behavior patterns designed to develop cohesive groups with high performance goals. He noted characteristic differences between effective and ineffective subunits with respect to several organizational processes, including leadership, communication, decision making, goal setting, and control. Likert devised a typology with four categories to classify an organization in terms of these characteristic differences. For each process (e.g., communication), information is obtained from a questionnaire and used to classify the organization as a *System 1, System 2, System 3,* or *System 4* organization. Table 11–1 summarizes the attributes of the two extreme types (System 1 and System 4) for each organizational process. Application of the classical organizing principles results in a Systems 1 or 2 organization, and the subunits found most effective by Likert were usually System 4 organizations.

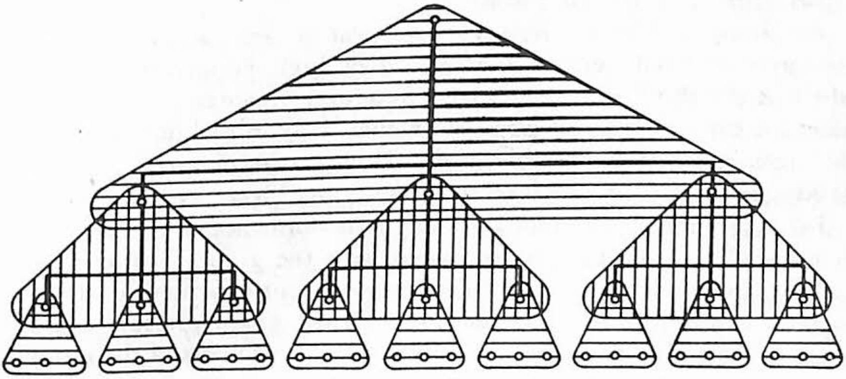
In order to achieve a System 4 organization, Likert (1967) suggested the application of three basic concepts: the principle of supportive relationships, group decision making, and high performance goals. The "principle of supportive relationships" is stated as follows (Likert, 1961, p. 103): "The leadership and other processes of the organization

TABLE 11–1
Characteristics of processes in Systems 1 and 4 organizations

System 1 Organization	*System 4 Organization*
1. *Leadership process* includes no perceived confidence and trust. Subordinates do not feel free to discuss job problems with their superiors, who in turn do not solicit their ideas and opinions.	1. *Leadership process* includes perceived confidence and trust between superiors and subordinates in all matters. Subordinates feel free to discuss job problems with their superiors, who in turn solicit their ideas and opinions.
2. *Motivational process* taps only physical, security, and economic motives through the use of fear and sanctions. Unfavorable attitudes toward the organization prevail among employees.	2. *Motivational process* taps a full range of motives through participatory methods. Attitudes are favorable toward the organization and its goals.
3. *Communication process* is such that information flows downward and tends to be distorted, inaccurate, and viewed with suspicion by subordinates.	3. *Communication process* is such that information flows freely throughout the organization—upward, downward, and laterally. The information is accurate and undistorted.
4. *Interaction process* is closed and restricted; subordinates have little effect on departmental goals, methods, and activities.	4. *Interaction process* is open and extensive; both superiors and subordinates are able to affect departmental goals, methods, and activities.
5. *Decision process* occurs only at the top of the organization; it is relatively centralized.	5. *Decision process* occurs at all levels through group processes; it is relatively decentralized.
6. *Goal-setting process* located at the top of the organization, discourages group participation.	6. *Goal-setting process* encourages group participation in setting high, realistic objectives.
7. *Control process* is centralized and emphasizes fixing of blame for mistakes.	7. *Control process* is dispersed throughout the organization and emphasizes self-control and problem solving.
8. *Performance goals* are low and passively sought by managers who make no commitment to developing the human resources of the organization.	8. *Performance goals* are high and actively sought by superiors, who recognize the necessity for making a full commitment to developing, through training, the human resources of the organization.

Source: Adapted from J. L. Gibson, J. M. Ivancevich, and J. H. Donnelly, Jr., *Organizations: Structure, Processes, Behavior* (Dallas: Business Publications, Inc., 1976), p. 277.

FIGURE 11–1
Overlapping group form of organization

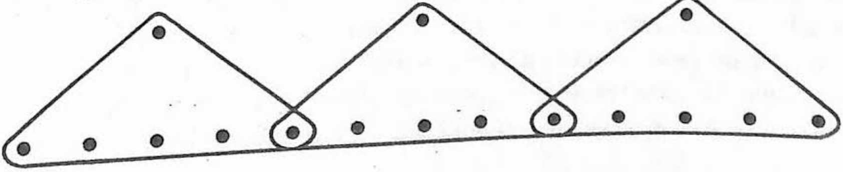


Source: R. Likert, *New Patterns of Management* (New York: McGraw-Hill, 1961), p. 105.

must be such as to ensure a maximum probability that in all interactions and in all relationship within the organization, each member in the light of his background, values, desires, and expectations, will view the experience as supportive and one which builds and maintains his sense of personal worth and importance." Implementation of this principle calls for managers to be considerate and supportive, to keep subordinates informed, to provide recognition for effective performance, and to consult with subordinates before making decisions affecting them.

The second fundamental concept is the use of group decision making instead of the one-to-one supervision and autocratic decision characteristic of bureaucratic organizations. Likert proposed an overlapping group structure in which each manager serves as the "linking pin" between a group of subordinates and the authority level above (see Figure 11–1). The purpose of this structure is to improve vertical and intragroup communication and to formally establish task groups composed of a manager and his or her subordinates. In addition to these vertical overlapping groups, Likert (1967) recommended use of overlapping horizontal groups with a common member to act as a liaison person or "horizontal linking pin" (see Figure 11–2). Overlapping groups together with committees and teams should be used as needed

FIGURE 11–2
Overlapping groups and horizontal "linking pins"



to ensure coordination and effective lateral communication among departments with related operations.

According to Likert, overlapping vertical groups and participative management would ensure the setting of high performance goals, which is the third prerequisite for a System 4 organization. Subordinates are expected to participate with their boss in making operating decisions and setting subunit goals. This process of group decision making is repeated at each level in the authority hierarchy. An individual manager remains accountable for the performance of the subunit, but specific responsibilities are shared with the group. Participation will supposedly increase subordinate commitment to achieve goals and to successfully implement decisions. Informal group pressure can be used to encourage compliance by any reluctant members of the group.

LIMITATIONS OF CLASSICAL AND HUMANISTIC THEORIES

The classical and humanistic organization theories have both been criticized severely. We will examine the weaknesses pointed out by critics before reviewing some comparative research on organizations carried out to evaluate one or both sets of organizing principles.

Criticisms of classical organization theory

The classical principles have come under attack from several quarters, including humanistic theorists, contingency theorists, and others (Argyris, 1964; Bass, 1965; Gouldner, 1954; Likert, 1961; March & Simon, 1958; Merton, 1968). The general criticisms range from "lack of theoretical sophistication" and "lack of clarity and consistency" to "inaccurate premises" and "unanticipated dysfunctional consequences." A few of the specific criticisms are as follows:

1. The implicit premise that lower-level employees are of a Theory X type is incorrect. There has been an increase in the education level and the standard of living since the early classical organization theories were formulated, and most employees are no longer uneducated peasants and immigrants who are willing to accept any kind of industrial job. When employees are of the Theory Y type, extreme formalization, centralization, and work simplification will result in frustration, withdrawal, and aggression.

2. The implicit premise that the organization exists in a stable, predictable environment is not likely to be true for the majority of modern organizations. Since the classical organization theories were initially proposed, business organizations have become larger and more complex. Great advances in technology have occurred, and the pace of discovery and change has quickened. New forces—such as unions,

consumer groups, and regulatory agencies—have appeared in the environment of business organizations. The degree of interdependence among firms in the national and world economies has increased. It is not feasible to create a bureaucratic organization with rules and standard procedures for every contingency when an organization exists in a dynamic and uncertain environment.

3. An extreme amount of centralization has important disadvantages, as noted in the preceding chapter, including lack of quick adaptation to variation in local conditions, loss of potential ideas and innovations from lower-level employees, and lack of lower-level commitment to decisions made at the top.

4. Extreme amounts of formalization and specialization lead to several undesirable consequences not anticipated by the classical theorists. These "bureaucratic syndromes" include a focus on rules rather than on the goals that the rules were designed to attain, a neglect of functions that do not clearly fall within one's sphere of responsibility, and a tendency to respond to a novel problem in a standard but inappropriate way, rather than showing initiative in recognizing the problem and dealing with it.

Criticisms of humanistic organization theory

In recent years, the humanistic theories have been subject to increasing attacks (Filley, House, & Kerr, 1976; Hellriegel & Slocum, 1974; Lawrence & Lorsch, 1969; Leavitt, 1962; Morse & Lorsch, 1970; Perrow, 1972; Strauss, 1969). A few of the specific criticisms are as follows:

1. If the classical theorists' perception of human nature was too cynical, the humanistic assumptions are too idealistic. Most lower-level employees in organizations probably fall somewhere between the two extremes of Theory X and Theory Y. Many of these people are likely to find that the informal structure and flexible roles advocated by humanistic theories present unacceptable levels of role ambiguity and role conflict. Moreover, many lower-level employees may lack the personality and motivational traits that are essential for job enrichment, participative leadership, and group action to be successful.

2. Humanistic organization theorists have assumed that decentralization and participation would result in the integration of organization goals, subunit goals, and member needs. This assumption may be unrealistic for many kinds of organizations. There are some basically incompatible differences in objectives between workers and executives, between soldiers and military leaders, between professors and university administrators, and between leaders of local affiliates or subsidiaries and the executives in the headquarters office. Despite broad areas

of mutual interest that provide the basis for some cooperation and accommodation, the underlying differences remain and are reflected in a continuing process of conflict and power politics. Therefore, any structural arrangement that greatly increases the power of lower-level participants may threaten the capacity of the organization to achieve its fundamental purpose.

3. In their concern about the fit between organization structure and individual characteristics, the humanistic theorists have neglected the fit between organization structure and the environment. Even though organizations are referred to as open systems in some of the humanistic organization literature, the implications of technology and environment for structural design are not seriously considered. Consequently, the humanistic theorists have not acknowledged the existence of situations requiring organization, or some of its subunits, to be designed according to classical prescriptions rather than humanistic prescriptions in order to be efficient enough to survive.

4. Since the focus of humanistic theorists is on human relations, some broader questions about organization design have been neglected. Humanistic theory does not specify what basis should be used for departmentiation, what degree of horizontal and vertical differentation is required, what span of control is feasible for group decision making, or when and where teams, committees, and overlapping groups are necessary.

Universal versus contingency theories

The classical and humanistic organization theories are "universal theories" that specify the best design for an organization, regardless of its size, purpose, or environment. The classical prescriptions were based on logic and personal experience and the humanistic prescriptions were based primarily on research with individuals and organizational subunits. The kind of research necessary to adequately test an organization theory involves comparison of effective and ineffective organizations to identify the structural characteristics associated with organizational effectiveness. As evidence from this kind of comparative research on organizations began to accumulate during the 1960s, it became obvious that neither classical nor humanistic theory was universally applicable. The effectiveness of different structural arrangements was found to depend to a large extent on the organization's environment and the technology used in its transformation process.

The findings from the early comparative studies led to the development of "contingency theories" of organization design. These theories consider the fit between organization structure and the environment (or technology) of the organization, as well as the fit between structure and employee characteristics. In the remainder of this chapter we will summarize the most promising of these contingency theories.

ENVIRONMENT AND ORGANIZATION STRUCTURE

As noted in Chapter 10, the organization is an open system. In order to survive, it must maintain a favorable balance of transactions with its environment and must cope with external threats of many types. Organizations cope in two general ways with their environment (Pfeffer & Salancik, 1978). First, they attempt to predict external events and influence them in a favorable direction. For example, a large aerospace manufacturing company may send a lobbyist to Washington to seek support for legislation favorable to the company. A consumer products company may conduct market research to identify emerging trends in consumer preferences, or it may initiate an advertising campaign to influence consumers to buy the company's products. The second general approach for coping with the environment is to modify the structure of the organization in a way that increases responsiveness to environmental threats and opportunities. For example, a company may establish a separate product division to deal with a segment of the market that is being neglected or serviced poorly by the existing product divisions. A manufacturing company in a highly competitive market may establish special teams to reduce delays in getting new products into production, thereby increasing its competitive advantage. Efforts to influence environmental events are not unrelated to internal reorganization. The capacity of an organization to monitor, interpret, and influence its environment depends in part on the way these activities are handled in the organization and on the resources allocated to them. Due to space limitations, we will only review research and theory on environmental implications for the design of an effective organization structure and will not attempt to review literature on how organizations influence their environments.

Burns and Stalker study

The earliest comparative study on the importance of the environment was carried out by Burns and Stalker (1961). These researchers interviewed managers in 20 industrial firms located in Scotland and England. The organizations were classified in terms of structure and management practices along a continuum ranging from "mechanistic" to "organic." Mechanistic organizations had a structure like that prescribed by the classical organization theories. The organic form of organization had flexible roles, open communication, coordination by committees, and other features consistent with humanistic organization theory. Burns and Stalker evaluated the effectiveness and environment of the organizations and concluded that the mechanistic form was appropriate for organizations with a relatively stable commercial and technical environment (e.g., a rayon mill). The organic form was appropriate for organizations with a dynamic, uncertain environment where there are frequent new scientific discoveries, technical inventions, and changes in market conditions (e.g., an electronics firm).

Galbraith's information-processing model

According to Galbraith (1973), an organization can be viewed as an information-processing network. The amount of information needed to perform a task depends on three factors: (1) the diversity of outputs, (2) the number of different resource inputs used in the transformation process, and (3) the difficulty of the performance goal. "The greater the diversity of outputs, number of resources, and level of performance, the greater the number of factors that must be considered simultaneously when making decisions" (p. 5).

Uncertainty is the difference between the amount of information needed to perform a task and the amount already possessed by the organization. Uncertainty limits the possibility of planning resource allocations, schedules, and work procedures in advance. If the necessary information is not possessed in advance, either it must be obtained during the performance of the task, or the task must be redefined to reduce the amount of necessary information (e.g., by lowering performance standards). Thus, as uncertainty increases, an organization usually attempts to increase its capacity for processing information, or it attempts to reduce the need for information processing. Each of these strategies involves certain changes in organization structure.

In a bureaucratic-mechanistic organization with a stable, predictable task and environment, coordination can be achieved among interdependent activities by means of predetermined rules and standard procedures. These structural features minimize the need for communication among task specialists and avoid the necessity for them to decide individually or jointly how to deal with every event as it occurs. Any rare exceptions that are not covered by standard rules and procedures or that exceed the limits established for individual discretion must be referred to a higher level for a decision. The appropriate person to make coordination, scheduling, and resource allocation decisions that involve two or more subunits is the manager who has authority over all affected parties.

As the amount of uncertainty increases for an organization, a bureaucratic structure is unable to carry out the necessary information processing. Exceptions to rules and standard procedures occur frequently when there is uncertainty, because it is not possible to anticipate events and plan standardized responses with any precision. As more and more exceptions are referred upward in the hierarchy for a decision, the information processing required on the part of middle- and upper-level managers exceeds their capacity; they become "overloaded." Delays occur in making decisions, some coordination problems are not resolved, and conflicts are aggravated. When this happens, there are four kinds of options available to an organization: (1) slack resources, (2) self-contained departments, (3) improved vertical information system, and (4) lateral relations.

SLACK RESOURCES The amount of necessary information processing will be reduced if the organization commits more resources to the transformation process, or lowers its performance goals. For example, scheduling personnel and equipment to perform a given set of tasks in a limited amount of time will be easier if extra personnel and machines are available. Of course, it will cost the organization more to use these extra resources, and the organization will have to accept the fact that it is now operating less efficiently. A related approach is to set lower goals in terms of time to complete a task. For example, if sales quotes a longer delivery time to customers, it is easier to schedule available personnel and equipment to perform the task. The cost in this example is likely to be a lower ability to compete with other firms in providing fast delivery to customers.

Slack resources can take many other forms, including lower quality of output, rejection of potential projects, larger inventories of finished goods, larger stockpiles of supplies, and use of "buffer stocks" between sequential production operations. In each case the burden of processing information to make coordination and scheduling decisions is reduced, but organizational efficiency or effectiveness is also reduced.

SELF-CONTAINED DEPARTMENTS The amount of necessary information processing can also be reduced by grouping activities into self-contained departments. As noted in the preceding chapter, it is sometimes possible to form primary subunits on the basis of product, customer, or geographical location. When functional specialists and equipment are divided up and allocated to separate subunits, the overall difficulty of achieving coordination among functions is reduced. Although some coordination and scheduling decisions are still necessary, less information must be processed to make the decisions, and they are decentralized to a lower level close to the source of the relevant information. The same approach can sometimes be used on a smaller scale to reduce the amount of decision making necessary to resolve conflicts over scarce resources or support personnel (e.g., word processing centers, duplicating services, equipment maintenance). In this case, the scarce resources would be divided up and allocated to the competing subunits, so that day-to-day allocation and scheduling decisions would no longer be necessary by higher-level managers. The cost of using self-contained subunits is usually less efficient utilization of specialized personnel and equipment.

VERTICAL INFORMATION SYSTEM A third option is to increase the amount of relevant information available to decision makers, reduce delays in collecting it, and increase the capacity of the decision makers to analyze it. This approach involves the application of computers, data processing technology, and perhaps even quantitative decision models. With more timely information and faster analysis, plans and schedules can be revised more often to accommodate changing conditions. Scheduling and coordination decisions having implications for many subunits of the organization can be more readily centralized. The cost of this option is in terms of the extra expense of information processing equipment and the personnel needed to operate the system.

LATERAL RELATIONS The final option is to improve information-processing capacity by decentralizing some operating decisions and creating lateral decision processes at lower levels. Some coordination and joint problem solving can be accomplished through direct lateral communication among affected parties. However, as uncertainty increases, direct lateral contact should be supplemented by such special lateral decision mechanisms as: (1) liaison personnel; (2) temporary task forces, teams, or committees; (3) permanent teams or committees; (4) integrators, integrating departments, or linking-managerial roles; and (5) a matrix structure. These lateral mechanisms are listed here in order of increasing cost to the organization. As the difficulty of achieving coordination increases due to more uncertainty or more complex interdependence among subunits, such mechanisms as liaison personnel and temporary decision-making groups are not sufficient to cope with the required information processing. When this happens, more complex lateral mechanisms are needed, for example, permanent committees, integrators, or a matrix structure. However, the more complex lateral mechanisms are more costly in terms of managerial time and personnel, so they should not be used unless necessary. Finally, it should be noted that the various kinds of lateral mechanisms are not mutually exclusive. A variety of different combinations of lateral mechanisms can be used in the same organization depending on the amount of information processing necessary and the pattern of relationships among subunits.

CHOICE OF STRATEGY Galbraith reminds us that the four options just described are the only ones available to an organization. One or more of these options must be utilized when uncertainty increases. If an intentional choice is not made, the first option—slack resources and lower performance—will happen automatically as the organization's capacity to process information within the authority hierarchy is exceeded. Galbraith's theory provides guidelines for selecting the option or combination of options most appropriate for the degree of uncertainty and type of task interdependencies faced by an organization. The reader is referred to Galbraith's (1973) book for a more detailed discussion of the factors to consider in making a rational choice among options and suboptions.

Lawrence and Lorsch theory

The more effective an organization is at gathering and utilizing information about relevant sectors of the environment, the more successful it will be in achieving its goals. The purpose and strategy of the organization (i.e., products, services, markets, activities) and the nature of the environment jointly determine what information is needed and how difficult it is to obtain. The structure of each major subunit of the organization and the cognitive-behavioral orientation of subunit members are important determinants of the organization's capacity to process information and achieve a unified effort by employees.

Organizations tend to have separate functional subunits corresponding to different sectors of the environment. For example, in a manufacturing company there is usually a marketing department to deal with the market sector or "subenvironment," and a research and development department to deal with the scientific subenvironment. In order to carry out its function effectively, a subunit's structure and the orientation of its members must be compatible with the characteristics of its tasks and subenvironment. One major characteristic of the task and subenvironment is uncertainty. There is more uncertainty when little information about changing conditions is available, little is known about causal relationships among environmental events, and there are long delays in obtaining feedback about the consequences of actions. It is appropriate for a subunit to have a high degree of formalization when there is little uncertainty in the task and subenvironment, but not when there is great uncertainty. It is appropriate for subunit members to have a long time orientation if feedback about consequences of actions is delayed, but it is appropriate to have a short time orientation when feedback is rapid. It is appropriate for subunit members to be "people oriented" if the function of the subunit is people-oriented—sales, public relations, and personnel administration, for example. Finally, the goal orientation of subunit members should be consistent with the goals inherent in its function and subenvironment. For example, marketing personnel should be primarily concerned about sales, customer service, and meeting competition. Production personnel should be concerned about costs and quality. Research and development personnel should be concerned about discovering new knowledge and applying it to the organization's products. Since goals direct behavior and influence the level of motivation (see Chapter 2), the performance of a functionally specialized subunit will be less than optimal if members are not oriented toward appropriate functional goals.

DIFFERENTIATION Lawrence and Lorsch (1969) use the term *differentiation* to describe the differences among organization subunits with respect to (1) formalization, (2) time orientation, (3) goal orientation, and (4) interpersonal orientation. When the relevant subenvironments of an organization are very diverse with respect to task requirements and uncertainty, the organization should be highly differentiated. In other words, separate subunits should be created with a specialized function and member orientation that is appropriate for their respective subenvironments. When the relevant subenvironments of an organization are very similar in uncertainty and task requirements, much less differentiation is necessary. In general, organizations will be more effective when the amount and form of differentiation is appropriate for the environment.

INTEGRATION The effectiveness of an organization depends on its "integration" as well as on its differentiation. Integration is defined as "the quality of the state of collaboration . . . among departments that are required to achieve unity of effort by the environment" (Lawrence & Lorsch, 1969, p. 11). In other words, integration is the degree of coordination and cooperation among subunits with interdependent tasks. The greater the degree of interdependence among tasks, the more integration is necessary. The difficulty in achieving integration depends on the amount of uncertainty and the amount of differentiation among subunits. When there is uncertainty, plans and schedules frequently need to be changed, and any adjustments made by one subunit will require adjustments by other closely related subunits. Thus the number of necessary coordination decisions is substantial. When there is also a high degree of differentiation, the problem is further complicated. Since each subunit has different goals and behavior patterns, conflicts are likely to result (see Chapter 8), and it is difficult to get the subunits to cooperate in solving scheduling, resource allocation, and coordination problems.

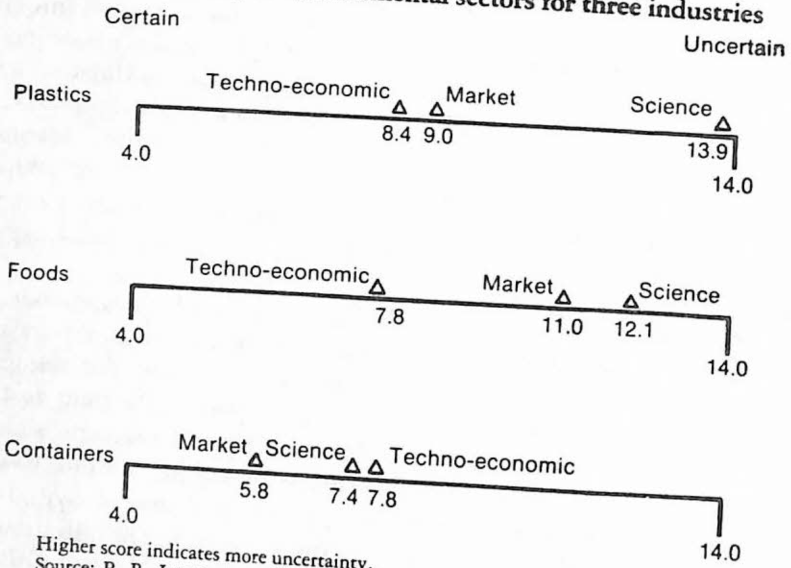
A variety of structural mechanisms are used by organizations to achieve integration. What mechanisms will be appropriate depends on the amount of integration needed and the difficulty of achieving this amount. When little integration is needed, the necessary amount can usually be achieved through the authority hierarchy. As the necessary amount of integration increases, additional mechanisms become appropriate, such as direct lateral contact, teams, and committees. Even these mechanisms will not be sufficient if there is a high degree of differentiation. In this case the organization should utilize structural mechanisms with a greater capacity for resolving conflict and achieving coordination. Lawrence and Lorsch suggest the use of special integrators or integrating departments. An integrator is a person whose job is to help two or more departments solve problems of coordination and scheduling. When this job becomes too big for a single integrator, a separate department with several integrators may be justified. Integrators will be effective to the extent that they have the personal skills, attitudes and authority necessary to ensure that conflicts among subunits will be confronted and resolved in a rational manner (see Chapter 8).

When joint decisions involving more than one subunit are made, it is important that the relative influence of each subunit reflect the relative importance of that subunit's specialized function. For example, in an organization where research and development is the most crucial function for organizational effectiveness, the R&D department should have more influence than other departments in making joint decisions. Effective integration also requires an appropriate degree of centralization. When the environment is uncertain, more decentralization is required for effective decision making, and decisions about coordination and scheduling should be made by lateral mechanisms at the level where the required knowledge about the task and environment is greatest.

Original Comparative Research Lawrence and Lorsch (1969) tested their theory by comparing effective and ineffective manufacturing firms in three industries: plastics, packaged foods, and standardized containers. The container firms had a low and relatively uniform degree of uncertainty in their environment (see Figure 11–3). The major competitive issues were fast delivery and high quality, and these objectives were shared by production, marketing, and R&D. Thus not much differentiation was needed in the container firms. A considerable amount of integration was needed because of certain interdependencies among departments. Close coordination was necessary between production and sales to meet tight delivery schedules, and cooperation was needed between development engineers and production personnel to improve product quality.

The plastics firms had a diverse and uncertain environment. There was a higher degree of uncertainty in the scientific subenvironment (R&D), than in the market (sales) and technoeconomic (production technology) subenvironments (see Figure 11–3). The major competitive issue was product innovation. Joint effort by sales and R&D was needed to develop new varieties of plastic that would be acceptable to customers (who were manufacturing firms). Close cooperation was also needed between production and R&D to develop production tech-

FIGURE 11–3
Relative uncertainty of environmental sectors for three industries



Higher score indicates more uncertainty.
Source: P. R. Lawrence and J. W. Lorsch, *Organization and Environment* (Homewood, Ill.: Richard D. Irwin, 1969), p. 91.

niques for the new plastics. These characteristics of the plastics firms required both a high degree of differentiation and a high degree of integration for effective performance.

The packaged food firms were between the container firms and the plastics firms in degree of environmental uncertainty and diversity, but were more like the plastics firms than the container firms (see Figure 11–3). The major competitive issue was product innovation, and close cooperation between marketing and R&D was needed to develop packaged foods that would appeal to the unpredictable taste of consumers. The characteristics of the packaged food firms required a moderately high degree of differentiation, and a high degree of integration.

After determining the appropriate degree of differentiation and integration according to the theory, Lawrence and Lorsch compared the most effective firms in the three industries. The results were as expected. There was high differentiation in the effective plastics firms, moderate differentiation in the effective packaged food firm, and low differentiation in the effective container firm. The degree of integration was high in all of the effective firms, but different structural mechanisms were used in each industry to achieve integration. The container firm relied on rules, procedures, direct lateral contact, and the authority hierarchy. This firm had a high degree of formalization. The effective packaged food firm used individual integrators and temporary cross-functional teams in addition to some rules, procedures, direct lateral contact, and the authority hierarchy. The effective plastics firms used an integrating department and permanent cross-functional teams at three levels of management, in addition to some rules, procedures, direct lateral contact and the authority hierarchy. In the effective container firm, operating decisions were highly centralized, whereas in the packaged food and plastics firms there was a considerable amount of decentralization. Finally, the relative influence of the primary departments in each kind of firm corresponded to the importance and uncertainty of their subenvironments.

Lawrence and Lorsch also compared the effective and ineffective firms within each kind of industry. The less effective firms in each case had structural characteristics that were inappropriate in many ways for their respective tasks and environments. In general, the results of the research provide strong support for the theory.

Environmental stability and complexity

The amount of information that needs to be processed to coordinate and control the work of organization members depends both on the "stability" of the environment and on its "complexity." In the contingency theories of Burns and Stalker (1961) and Lawrence and Lorsch (1969), these two environmental dimensions were not clearly distinguished. Emery and Trist (1965), Mintzberg (1979), and others have pointed out the differing implications of stability and complexity for organizational design.

Stability is the extent to which unpredictable changes affect the organization's work and make it uncertain (Mintzberg, 1979). In a dynamic (i.e., unstable) environment: sources of supply are unreliable; customer demand is unpredictable; technology is changing; and there are other sources of disruption, such as labor shortages or the actions of competitors. Complexity refers to the amount of knowledge needed to understand elements of the environment, such as an organization's markets, clients, competitors, and suppliers (Mintzberg, 1979). An environment is simple if little knowledge and experience are needed to understand how to cope with it successfully. Dynamic environments tend to be more complex, as in the case of an aerospace manufacturing company or the plastics companies studies by Lawrence and Lorsch. Stable environments tend to be less complex, as in the case of Lawrence and Lorsch's container manufacturing companies, or a bank in the days before deregulation. Nevertheless, stability and complexity are distinct dimensions that are only modestly correlated. It is possible for an organization to have an environment that is simple and dynamic. For example, in a fashion clothing firm the manufacturing and marketing processes are quite well understood, even though the preferences of consumers for different styles, colors, and fabrics change in unpredictable ways from year to year. It is likewise possible for an organization to have a complex but stable environment. For example, in a chain of nursing homes, the market demand for nursing care is highly predictable, but it is difficult to determine how to provide the best form of health care.

Environmental stability has implications primarily for formalization, whereas complexity has implications primarily for centralization (Mintzberg, 1979). The more dynamic the environment, the less appropriate it is for an organization to be bureaucratic. When the environment is changing in unpredictable ways, it is not feasible to rely on standardized work procedures and detailed rules and regulations. The more complex the environment, the less appropriate it is to be highly centralized. It is very difficult for a centralized decision maker to comprehend a complex environment, so there is pressure to delegate authority for operating decisions to lower-level managers and specialists.

Environmental stability and complexity jointly determine what structural forms are most appropriate for achieving coordination, control, and effective adaptation to the environment (see Table 11–2). In an environment that is simple and stable, it is appropriate for an organization to be highly formalized and centralized, like Burns and Stalker's mechanistic organizations. Coordination is achieved through a combination of standardized rules and procedures plus centralized

TABLE 11–2
Structural implications of environmental stability and complexity

	Simple Environment	Complex Environment
Stable Environment	**Mechanistic Bureaucracy** Centralized authority High formalization Coordination primarily by standardized rules and procedures	**Professional Bureaucracy** Decentralized authority Low to moderate formalization Coordination primarily by standardization of skills and values
Dynamic **Environment**	**Simple Structure** Centralized authority Low formalization Coordination primarily by direct supervision of top management	**Organic Form (Adhocracy)** Decentralized authority Low formalization Coordination primarily by mutual adjustment

Source: Adapted from H. Mintzberg, *The Structuring of Organizations* (Englewood Cliffs, N.J.: Prentice-Hall, 1979), p. 286.

operating decisions. This kind of organization is likely to have functional departmentation with many highly specialized subunits, an elaborate technostructure composed of staff specialists, and an extensive managerial hierarchy (Mintzberg, 1979). Examples of "mechanistic bureaucracies" include Lawrence and Lorsch's container companies, firms that mass produce a limited variety of standardized consumer products, and companies that produce basic materials, such as steel, aluminum, cement, and lumber.

In an environment that is simple but dynamic, it is appropriate to have a centralized organization with low formalization. Coordination is achieved primarily through direct supervision by top management. Organizations with this kind of environment tend to be relatively small, and they usually provide only one or two types of products or services. This kind of organization is likely to have a small managerial hierarchy, little or no technostructure, few support staff, and little subunit specialization (Mintzberg, 1979). Examples of organizations with this "simple structure" include fashion clothing firms, newspapers and magazines, owner-managed retailing and service businesses, and new entrepreneurial companies.

In an environment that is stable but complex, it is appropriate to have a decentralized organization with an operating core and middle line composed mostly of professionals with relevant values and technical skills. There are some standardized rules and policies, but most work procedures are left to the discretion of these professionals, who apply their previously learned skills. Coordination is accomplished primarily through mutual adjustment among professionals with shared values and standardized skills. Coordination needs can usually be reduced by having self-contained subunits based on geographical region, type of client, or type of professional speciality. This kind of organization has a relatively small middle line and technostructure, but there is likely to be a medium- to large-size support staff (Mintzberg, 1979). Examples of "professional bureaucracies" include health care organizations, universities, accounting firms, and law firms.

In an environment that is complex and dynamic, it is appropriate to have a decentralized organization with low formalization, like Burns and Stalker's organic organizations. Coordination is achieved primarily through mutual adjustment within lateral relations at various levels of the organization. High uncertainty stemming from the dynamic environment requires the use of more elaborate lateral relations than are needed in a professional bureaucracy, especially when organizational activities are highly interdependent. Thus the organization is likely to have a matrix structure, or a functional/product structure augmented by committees, project teams, and integrating positions. Examples of this kind of organization include research laboratories, aerospace companies, plastics firms, and high technology electronics and computer companies.

Up until now, the discussion of stability and complexity has assumed that the environment of an organization is uniform. However, as Lawrence and Lorsch demonstrated, an organization has many subenvironments, and these are seldom uniform. For an organization with a diverse environment, the appropriate structure will be a hybrid of the structural forms we have just discussed. Consistent with Lawrence and Lorsch's theory, a diverse environment requires more differentiation of structural forms among organization subunits. Subunits with a dynamic subenvironment require less formalization than do subunits with a stable subenvironment, and subunits with a complex subenvironment require more internal decentralization than do subunits with a simple subenvironment. In an organization with a diverse environment, it is not uncommon to find a very "organic" research and development department along with a very mechanistic production department. In this same organization may be found a legal office organized like a professional bureaucracy and an equipment maintenance department organized like a simple structure (especially if equipment breakdowns are unpredictable, but repairs are easy to make).

If environmental diversity is due primarily to differences associated with multiple products or multiple markets, the organization is likely to adopt a divisionalized structure with product-based or geographically based subunits. A divisionalized structure is feasible if no major interdependencies stand in the way of forming self-contained units corresponding to the different products, product groups, or markets. Examples of organizations with this kind of structure include conglomerates (e.g., Litton, ITT) and multinational manufacturing companies (e.g., IBM, General Electric). The separate divisions are likely to be differentiated to satisfy the unique requirements of their own particular environments. However, in some cases the divisions will have parallel structures, particularly if based on geographical region rather than on different products.

TECHNOLOGY AND ORGANIZATION DESIGN

The term *technology* generally means the equipment, tools, and methods used by an organization to provide products or services to clients and customers. Technology is an ambiguous concept that has been defined and measured in a number of different ways by different researchers. In this section of the chapter we will review what research has shown about the implications of technology for design of organizations.

Woodward study

In one of the earliest studies on technology, Woodward (1965) used interviews and records to investigate the relationship between structure and organization effectiveness for 100 manufacturing firms. Woodward classified the firms into three broad categories of production technology. *Job order production* firms developed and produced single, custom-made articles or small batches of a product according to each customers's specifications (e.g., firms making prototypes of electronic or mechanical equipment). *Mass production firms* made large batches of standardized products on an assembly line (e.g., firms making automobiles, consumer appliances, television sets). *Process production* firms carried out highly automated, continuous flow production of liquids, gases, and crystaline substances (e.g., firms engaged in refining petroleum; firms producing chemicals or plastics).

The firms with a given type of production technology did not have identical structural characteristics, but they tended to be more similar to each other than to firms with another type of production technology. Some of these differences are summarized in Table 11–3. The most important discovery was that the successful firms in each category of production technology differed in structure from the less successful firms with the same production technology. The more successful firms tended to have the median structural characteristics for their kind of technology. In general, successful mass production firms had a "mechanistic" structure consistent with the classical prescriptions, while successful job order and process production firms had more "organic" characteristics. Most of these results from Woodward's research have been successfully replicated by Zwerman (1970) in a study of 55 manufacturing firms in the United States.

TABLE 11–3
Relationship between technology and structural characteristics

Structural Characteristic	*Job-Order Production*	*Mass Production*	*Process Production*
Chief executive's span of control*	4	7	10
First-line supervisor's span of control*	23	48	15
Number of authority levels*	3	4	6
Ratio of managers: nonsupervisory employees*	1:23	1:16	1:8
Percent of firms with management committees	12%	32%	80%
Degree of formalization	Low	High	Low

* Median value for firms with the same production technology.

Source: Joan Woodward, *Industrial Organization: Theory and Practice* (New York: Oxford University Press, 1965), pp. 51–67.

Aston research

A study of 52 British organizations conducted by researchers at the University of Aston appeared to contradict Woodward's conclusions about the importance of technology for organization design (Hickson, Pugh, & Pheysey, 1969; Pugh, Hickson, Hinings, & Turner, 1969). The measure of technology in this research was called "work-flow integration." It is a composite index that takes into account several aspects of technology, including the amount of fixed-sequence operations, the amount of waiting time between operations, the extent of work-flow interdependence, the amount of single-purpose equipment, the amount of automation, and the degree to which outputs can be measured against precise specifications. Whereas Woodward's study included only small- to medium-size manufacturing companies, the Aston research included a much broader range of organization types and sizes.

The researchers found that such aspects of structure as formalization, centralization, and subunit specialization were primarily dependent upon organization size rather than on technology. Larger organizations were more formalized and had more specialized subunits and a larger administrative component (i.e., middle line and technostructure), regardless of technology. Only those aspects of structure that were directly involved with the work flow itself showed any connection with technology. For example, results regarding the span of control of first-line supervisors were similar to Woodward's findings. The Aston researchers concluded that technology has minimal implications for organization design and attributed Woodward's findings to the absence of large organizations in her sample. They pointed out that in small organizations, everyone is close to the operating core and affected by its technology, whereas in larger organizations size becomes the predominant factor in design of structure.

Some researchers have found fault with the conclusions reached from the Aston research. Aldrich (1972) reanalyzed the Aston data using a more powerful statistical procedure called path analysis and concluded that technology and size both independently affect organization structure. Other writers have pointed out that the Aston research, like the Woodward research, is incapable of determining causal relationships regardless of the method of statistical analysis, since data on all of the variables was gathered at the same time (Jackson & Morgan, 1982). The correlation between size and formalization is interpreted in the Aston research as showing that growth results in more formalization, but other interpretations are plausible. For example, it is possible that increased formalization stimulates growth. It is also possible that growing firms tend to use more mechanized-automated technology, which results in various structural changes independent of the effects of size itself on structure. Only careful, longitudinal research will resolve this question.

Mintzberg's theory

Since the Aston research, there have been several other studies on the importance of technology (Blau, Falbe, McKinley, & Tracy, 1976; Khandwalla, 1974; Child & Mansfield, 1972; Negandhi & Reimann, 1973). These studies generally support the conclusion that technology is not the predominant factor in organization design, but the research also suggests that technology is not so inconsequential as the Aston researchers contended. Some of the confusion about the implications of technology appear to be due to differences in the definition of technology and to the failure of some researchers to carefully distinguish between technology, environment, and aspects of structure itself (Pennings, 1975; Stanfield, 1976).

In an attempt to clarify and reconcile the findings from the technology research, Mintzberg (1979) suggested a narrower definition of technology. According to Mintzberg, the "technical system" consists of the instruments used to transform inputs into outputs. Technical systems differ along two major dimensions: regulation and sophistication. Regulation is the degree of control exerted over the operator's work behavior by the instruments used to do the work (i.e., tools, machines, equipment). This dimension is similar to work-flow integration. There is a relatively high degree of regulation for a mechanized assembly-line technology, because the appropriate work behavior of the human operators is necessarily limited by the needs of the equipment. In contrast, workers in an advertising agency are not much constrained by the equipment used to design slogans, jingles, and graphic advertisements. Sophistication refers to the complexity of the technical system with respect to its design and maintenance. An automated oil refinery has a highly sophisticated technology, whereas a supermarket has a relatively simple one.

Mintzberg proposed that although the technical system has its greatest impact on the structure of the operating core, it also affects the middle line, technostructure, and support staff. A highly regulated technical system is compatible with extensive formalization. In moving from job-order production to mass production, formalization increases and control over work procedures shifts from operators and line managers to staff analysts in the technostructure (e.g., industrial engineers, quality control engineers, production planners). The span of control for first-line supervisors of operating core subunits is likely to be quite large, since demands for supervision are reduced by the standardized work roles and machine-determined work pace. Nevertheless, the increase in the number of specialized, sequentially interdependent subunits requires an elaboration of the middle line to supervise and coordinate these operating units. More managers are also needed to supervise the growing technostructure and support staff.

In moving from mass-production technology to process production, there is a corresponding increase in regulation and sophistication. Regulation increases to the point where it is feasible and economical to replace human workers with machines. As semiskilled workers are replaced by automated machines and a small number of skilled technicians to monitor the machines, make necessary adjustments, and maintain the equipment, there is no longer any need for formalization in the operating core. The size of the technostructure decreases because the staff analysts responsible for developing standardized rules and procedures are no longer needed. However, the increased sophistication of the automated technology leads to an increase in the number of support staff required to design, purchase, install, and modify equipment used in the operating core. High sophistication also results in more decentralization of control over operating decisions to these support staff and to the technically oriented managers in the middle line. More liaison devices and lateral linkages are needed to coordinate the professional support staff, technicians, and middle-line managers. The distinction between line and staff has now blurred, and the organization has moved from a bureaucratic toward an organic structure. These interpretations appear consistent with Woodward's (1965) findings as well as with the findings in most of the other technology research.

Relative influence of contingency factors

In general, it appears that environmental conditions have a somewhat greater influence on organization structure than other contingency factors such as technology and size (Mintzberg, 1979). The influence of technology is most evident in smaller organizations. The influence of size is most evident for organizations with a stable environment. In a dynamic, complex environment where information processing requirements cannot be dealt with by formalization or centralized supervision, environmental influences overwhelm the effects of size and technology and push the organization toward an organic structure.

The effect of the environment is most evident in organization subunits that deal directly with the environment, such as financial planning, marketing, public relations, research and development, and purchasing. Sometimes it is possible to insulate the output-producing subunits of the operating core from environmental sources of disruption, resulting in an organization with a bureaucratic "core" and organic boundary-spanning departments. However, in organizations whose products or services must be frequently adapted to changing client needs or new technology (e.g., special-purpose equipment manufacturer, advertising agency, management consulting firm, computer software design firm), it may be impossible to insulate the operating core. For this kind of organization, the core output-producing units will likewise be pushed toward an organic structure in order to cope effectively with a dynamic environment.

Given the many possible combinations of influences from environment, technology, size, age, ownership control, and other determinants, it would seem that an almost infinite number of structural variations will occur. However, Mintzberg (1979) contends that most organizations adopt one of five common structural configurations (i.e., simple structure, mechanistic bureaucracy, professional bureaucracy, adhocracy, and divisionalized structure). The prevalence of these five configurations is due to the fact that some combinations of structural features are more mutually compatible than others. These configurations stand out as obvious and feasible solutions to problems of organizational design. Over time, if an organization's mission or type of environment changes drastically, the structure is likely to evolve from one configuration to another, rather than merely being altered on one or two structural attributes. The reader is referred to Mintzberg's (1979) book for a more detailed explanation of this interesting theory.

Evaluation of contingency theories

It is too soon to evaluate the accuracy of the contingency theories presented in this chapter because not enough rigorous comparative research has been conducted yet. The theories are consistent for the most part with each other and with previous comparative research. As more research slowly accumulates, a better assessment will become possible. Even though new research findings may require some modification and elaboration of the theories, it is unlikely that the major implications will change. All organizations face the dual problem of attaining an efficient degree of subunit specialization and achieving effective coordination between specialized subunits. The contingency theories provide a useful way to conceptualize these issues and provide guidelines for the organizational designer to aid in finding a structure that is appropriate.

SUMMARY

Three types of theories have been formulated to specify the appropriate structural design for an organization. Classical organization theory sought to achieve internal efficiency in organizations by creating narrowly specialized positions, determining efficient work procedures, and establishing an elaborate control system to ensure compliance with rules and procedures. This rather "mechanistic" form of organization was based on the premise that lower-level employees are not capable of working effectively on their own without detailed rules and instructions, close supervision, and economic incentives.

Humanistic organization theory prescribed an organization with flexible roles, open communication, participative leadership, and decentralized decisions. This "organic" form of structure assumed that organization members are responsible, creative, and self-motivated. In such an organization, influence would be based primarily on expertise rather than on formal authority, and control would be achieved by reliance on self-motivation and group pressure.

Comparative research on total organizations revealed that the kind of structure that is necessary for an organization to be effective depends on the organization's environment and technology as well as on its member characteristics. Contingency theories were formulated to provide a conceptual framework for analyzing the situation and determining what kind of structural design is appropriate.

The early, relatively simplistic research by Burns and Stalker (1961) suggested that a mechanistic structure is appropriate in a stable, simple environment, whereas an organic structure is appropriate in a dynamic, complex environment. Galbraith (1973) showed how the choice of structural mechanisms to achieve coordination depends on information processing requirements that stem from the nature of the task and environment. Lawrence and Lorsch (1967) recognized that the environment is multifaceted rather than uniform, as assumed by Burns and Stalker. The more diverse the environment is, the more variation in structure is needed among the organization's subunits. This differentiation makes it more difficult to achieve coordination and cooperation among subunits, and if the subunits are highly interdependent, special integrating mechanisms will be necessary.

The emerging contingency approach was further refined by other theorists who pointed out the different but related implications of environmental stability and complexity for organization design. The appropriate structure depends on what combination of these environmental conditions is present, as well as on the diversity of conditions among an organization's subenvironments.

The technology used by an organization to carry out its mission also has implications for organization design. Although technology appears to be less important than environment or organization size, all three contingency factors should be considered together when evaluating the feasibility of alternative structures. Additional research is needed to clearly understand the complex interaction among these three factors and to establish what causes what.

REVIEW AND DISCUSSION QUESTIONS

1. Define or explain each of the following key terms: *Theory X* and *Theory Y*, *classical organization theory*, *humanistic organization theory*, *contingency theories*, *unity of command*, *System 1* and *System 4* organizations, *principle of supportive relationships*, *linking pin function*, *overlapping groups*, *mechanistic* and *organic systems*, *job-order production*, *mass production*, *process production*, *technology*, *uncertainty*, *lateral relations*, *slack resources*, *vertical information system*, *self-contained subunits*, *subenvironment*, *time orientation*, *goal orientation*, *differentiation*, *integration*, *integrator*, *mechanistic bureaucracy*, *professional bureaucracy*, *simple structure*, *divisionalized structure*, *technical system regulation and sophistication*.
2. What kind of organization was favored by the classical organization theorists?
3. What kind of organization is advocated by the humanistic organization theorists?
4. What are some criticisms of classical organization theory?
5. What are some criticisms of humanistic organization theory?
6. What was found by behavioral scientists in their comparative research on organizations?
7. According to Galbraith, what are the available options for an organization that lacks the capacity to process information effectively for coordination and scheduling decisions?
8. According to Lawrence and Lorsch, how is differentiation and integration related to organization effectiveness? What determines how much differentiation and integration are necessary?
9. According to Mintzberg, what are the implications of environmental stability and complexity for the optimal design of an organization?
10. What are the implications of technology for organization design?

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12

Organization development

Organization development (OD) is a field that is rapidly changing as a result of new knowledge. Thus there is some disagreement among authors and practitioners about the nature and scope of OD. In fact, there is no single definition of OD with which everyone would agree. Therefore, instead of merely presenting a long list of OD definitions offered by numerous experts in this area, it would seem more worthwhile for us to examine some of the common characteristics of *most* OD efforts.

CHARACTERISTICS OF ORGANIZATION DEVELOPMENT

1. It involves a total organizational system As Beckhard (1969) points out, this does not necessarily mean that the entire organization must be involved. Rather, OD can be initiated in any subsystem that is relatively free to determine its own plans and future (e.g., a fairly autonomous plant of a multiplant organization).

2. It views organizations from a systems approach The organization is seen as an interdependent set of integral component parts. The practitioner realizes that changing one part of the total system in some way will have multiple effects on other parts of the system. The practitioner also thinks in terms of multiple rather than single causes of organizational events (French & Bell, 1978).

3. It is supported by top management Top management must show a definite commitment and awareness of the OD effort.

4. The services of a third-party change agent is often used As French and

Bell (1978) point out, the agent may be a member of the organization but should be external to the particular organizational subsystem initiating the OD effort. It is interesting to note, however, that there is a growing tendency to use internal change agents (Huse, 1975). This issue is a controversial one with little evidence as to which approach is better.

5. *OD is a planned effort* It entails a systematic diagnosis of the organization, a detailed plan for improving the current state of affairs, and a mobilization of the resources needed to carry out the program (Beckhard, 1969).

6. *It is intended to increase organization competence and health* A competent organization is one that is both effective and efficient (Huse & Bowditch, 1973). Organizational effectiveness is the degree to which an organization reaches its goals and objectives; organizational efficiency refers to the amount of resources the organization requires to produce its outputs. Although the two concepts are highly interrelated, they are distinct. After all, it is quite possible for an organization to be efficient but not effective, or vice versa (Etzioni, 1964).

Other authors, most notably Beckhard, prefer to speak in terms of organizational health. In Beckhard's view, a healthy organization is one that manages its work toward established goals; is properly organized; makes decisions by and near the sources of information; rewards (and punishes) managers and supervisors according to their performance; has communications that are relatively undistorted; minimizes win/lose conflicts between individuals and groups; has a high clash of ideas about tasks and projects, but little clash over interpersonal difficulties; is an "open system"; and attempts to help each person and organizational unit maintain its integrity as well as grow.

7. *It uses behavioral-science knowledge* An OD intervention is based on knowledge and technology obtained from various areas of the behavioral sciences: leadership, communication, motivation, goal setting, learning, intergroup relations, small group behavior, conflict management, attitudes, organizational structure, and interpersonal relations.

8. *It is a relatively long-term process* It often takes years to bring about a meaningful and lasting organization change. For example, grid organization development (discussed later in this chapter) may take five years to complete.

9. *It is an ongoing process* The OD process is a continuous and dynamic one. The practitioner must be capable of modifying or changing strategy in midstream as a result of emerging problems and organizational events. There are continual ups and downs in the process, but the change agent must "hang in there."

10. *It mainly focuses on changing the attitudes, behavior, and performance*

of organizational groups or teams rather than of individuals However, as we shall see later, some interventions are directed at individuals.

11. It relies primarily on experiental, as opposed to didactic, learning Although OD may involve the imparting of factual knowledge by means of lectures and group discussions, it relies heavily on organizational members actually experiencing, experimenting with, and reflecting on new forms of behavior.

12. It uses an action research intervention model The key aspects of the model include collecting research data about an ongoing system by the change agent, making preliminary diagnosis, feeding back and discussing these data with the client group, joint action planning by the agent and client, action, and rediagnosis. This model will be discussed in greater detail later in the chapter.

13. It emphasizes the importance of goal setting and planning activities One of the major features of OD programs is teaching individuals and groups how to set measurable and realistic goals and how to translate these goals into action.

It would also be helpful to understand also what OD is *not*. OD is *not* management development. Management development is concerned specifically with improving the skills, knowledge, and attitudes of individual managers (see Chapter 17). Although an OD effort might possibly involve management development, it would do so only as a part of its larger objective of improving the competence or health of the units comprising the total organization (Beckhard, 1969). The term *OD* should not automatically be associated with sensitivity training or participating in a Managerial Grid seminar. Instead, there are a variety of different approaches that can be used in OD depending upon the particular organization's needs. Finally, OD differs from most other methods of organizational change in which a consultant studies an organizational situation and makes recommendations. The OD practitioner does not make recommendations in the traditional sense, but, instead, works hand-in-hand with the organization to assist it in its attempt to survive and remain competent in a world of rapid technological and cultural change.

HISTORICAL BACKGROUND

The history of organization development can be traced back to two related but different sources. One source, laboratory or T-group training, emerged in 1946 when Kurt Lewin and his staff formed the first T-group workshop. It involved community leaders who were brought together to discuss problems and were later given an opportunity to react to feedback about their individual behavior. As a result of this experience, Lewin and his associates believed that individuals could learn from their own interactions by participating in unstructured, small group (called T-group) situations. Their early work led to the establishment of the National Training Laboratories (NTL)—Institute for Applied Behavioral Science at Bethel, Maine, in the late 1940s. During the 1950s, many of the NTL trainers became increasingly involved in providing managers in business and industry with T-group training. Since then, T groups have been quite popular in a wide variety of organizations. The second source also stems from the early work of Lewin, this time in survey research and feedback. As an illustration of this approach, the Detroit Edison Company was given a company-wide employee and management attitude survey beginning in 1948 (Mann, 1962). During the following few years, meetings were held separately with nonsupervisory employees, first- and second-line supervisors, and various levels of management in order to feed back information about each work group's attitudes regarding their supervision, promotional opportunities, job satisfaction, and so on. This was the first of many research studies still continuing today by the Institute for Social Research at the University of Michigan on the effects of survey research feedback. Today, OD applications emerging from one or both of these sources can be seen in many kinds of organizations throughout the world (e.g., industrial settings, police departments, churches, public schools) (French & Bell, 1978).

ASSUMPTIONS OF OD INTERVENTIONS

Most of the assumptions and values basic to organization development interventions are in concordance with the humanistic theories of such individuals as McGregor, Likert, Argyris, Maslow, Bennis, and Schein (see Chapter 11). French and Bell (1978) have made these OD assumptions explicit by classifying them into those relating to people as individuals, as group members, and as members of total organizations. The following list is a summarization of some of these underlying assumptions.

As individuals

1. Most individuals desire personal growth and development when placed in a supportive and challenging work environment.
2. Most individuals are capable of making a greater contribution to their organizations than their organizations are willing to permit. Organizations often squelch their members' constructive actions (e.g., participation in decision making, providing suggestions) either by not rewarding them or by penalizing them.

In light of these two assumptions, many OD interventions are directed at unleashing an individual's drive toward personal growth or are directed at removing organizational constraints that are suppressing these natural tendencies.

As group members

1. One's work group is extremely important in determining feelings of competence and satisfaction.
2. Most people want to be accepted by and get along well with their work group. These work groups can be made more effective if individuals work together more cooperatively.
3. The formal leader of a work group cannot possibly perform all of his/her leadership functions at all times. Hence, group members must help the leader by sharing in leadership functions.
4. Suppressed feelings adversely affect the functioning of groups and organizations. Group climate should be one of increased openness.
5. The level of interpersonal trust and support is much lower in most groups and organizations than is desirable.
6. The solutions to most attitudinal and motivation problems in groups are transactional. This means that *all* individuals in the system or subsystem must modify their mutual relationships. The objective is *not* how A can get B to change, but how A and B can both change to improve their mutual effectiveness.

All of this implies that the unit of attention in many OD interventions is larger than the single individual. Often, organization development focuses on the interactional nature among individuals within groups.

As people in organizational systems

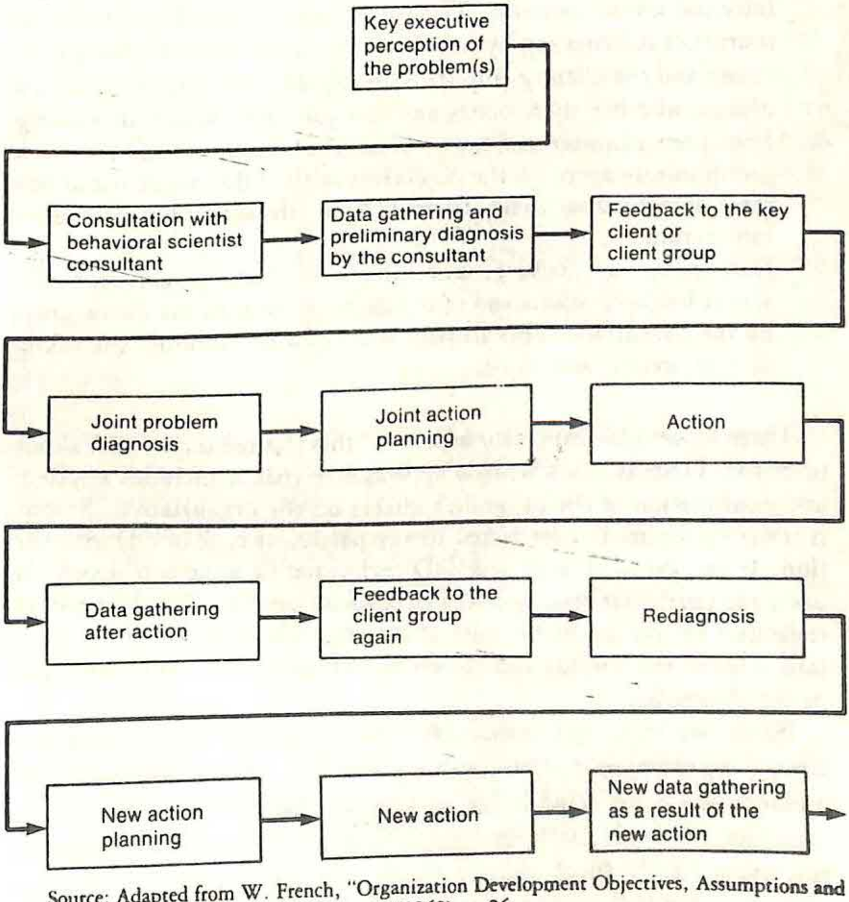
1. Most managers in organizations are members of overlapping work groups. The manager functions as a "linking pin," serving as the superior of one group and as a subordinate and peer in another (see Chapter 11). The leadership style and climate of the higher-level group gets transmitted downward to the lower-level group via the manager.
2. Resolving conflict in such a way that one party wins triumphantly and the other loses severely may be realistic and appropriate in some situations, but in the long run it is not healthy for the organization to solve most organizational problems in this way.
3. Improved performance due to OD efforts needs to be supported and maintained by appropriate managerial changes in other subsystems of the organization, such as performance appraisal, training, personnel selection and placement, and communication.

4. Because organizational change takes time and patience, OD people need to keep a relatively long-term perspective.

CHANGE PROCESSES AND STAGES

Organization development efforts are directed at bringing about some planned change in order to increase organizational competence. The basic change model underlying most OD interventions is known as action research. Action research is a series of steps or activities that is used in actual practice for bringing about desired changes. Figure 12–1 presents a diagram of the events involved in action research. Two things are evident from this figure: first, action research is a cyclical, ongoing process; and second, it consists of the following five key stages:

FIGURE 12–1
Diagram of the specific steps of the action research model for organization development


Key executive perception of the problem(s)
Consultation with behavioral scientist consultant
Data gathering and preliminary diagnosis by the consultant
Feedback to the key client or client group
Joint problem diagnosis
Joint action planning
Action
Data gathering after action
Feedback to the client group again
Rediagnosis
New action planning
New action
New data gathering as a result of the new action

Source: Adapted from W. French, "Organization Development Objectives, Assumptions and Strategies," *California Management Review 12* (1969), p. 26.

1. *Problem perception.* The process begins when a powerful key executive realizes that the organization has one or more problems and persuades others in the organization that a behavioral-scientist consultant should be contacted. Some of the many problems an organization may be experiencing include poor communication, intergroup conflicts, poor planning and goal setting, low motivation on the part of employees, poor team effectiveness, and poor managerial style.
2. *Collection of data and preliminary diagnosis.* The consultant gathers information about the ongoing system by using face-to-face interviews, structured or unstructured questionnaires, observations of individuals or groups in action, and company performance records. Based on these data, the practitioner arrives at certain hypotheses or hunches about possible courses of action that should be followed.
3. *Feedback and joint diagnosis.* All relevant information obtained by the consultant is shared with the client group, usually at some informal group meeting. The consultant is careful to protect all sources of information by not divulging their identity. The practitioner and the client group then jointly diagnose the situation and discuss whether there exists any real problems worth alleviating.
4. *Joint action planning and action.* First, the consultant and the client group jointly agree on the objectives of the OD program and how these objectives are to be attained. Next, the actual program is put into action.
5. *Data gathering, feedback, and rediagnosis.* Data is gathered after action has been taken and once again fed back to the client group by the consultant. This usually leads to a rediagnosis, the taking of new action, and so on.

There are several important aspects of this change model that should be noted. First, it is a scientific approach in that it includes a systematic examination of the program's effects on the organization. Second, it is not committed or restricted to any particular type of OD intervention. It can be used with any OD technique or approach depending upon the particular results of the diagnostic process. Third, it reduces resistance to change on the part of the individuals involved by taking into account their needs and beliefs as well as having them participate in the diagnoses.

Before we leave this important topic of facilitating organizational change, an example applying action research to a typical organizational problem might be helpful. Let us suppose that the problem is one of unproductive weekly staff meetings. That is, they are poorly attended, employees barely speak during them, and few productive ideas are generated. Suppose also that several key executives are keenly aware of this problem and have decided to call in a behavioral scientist consultant. The consultant gathers data via interviews and observations about the current situation and concurs that the meetings are in fact disliked by employees and quite unproductive. The consultant feeds back this diagnosis with the client group, and all concerned agree that the problem must be alleviated. Next, the consultant and client jointly search for the causes of the problem and generate one or more actions to be taken. For example:

1. Staff meetings will be more productive if I solicit and use agenda topics from the staff rather than have the agenda made up just by me.
2. Staff meetings will be more productive if I rotate the chairmanship of the meeting among the staff rather than my always being chairman.
3. Staff meetings will be more productive if we have them twice a week instead of only once a week.
4. I have always run the staff meetings in a brisk, "all-business-no-nonsense" fashion; perhaps if I *(a)* loosen up on what can be discussed and how, *(b)* encourage more discussion, *(c)* listen to what is said more carefully, and *(d)* am more open about how I am reacting to what is being said, then staff meetings will be more productive.

Next, these actions are systematically implemented one at a time and evaluated for their effects. The results are fed back to the client group and, based upon their effectiveness, new actions are taken.

WHY ORGANIZATIONS CHANGE

In the previous section, we discussed action research, which specifies the steps or activities used for bringing about organizational change. Now, let us focus our attention on *why* organizations are willing to implement and sustain change. In doing so, we will use the following model of change presented by Beer (1980):

$$Ch = (D \times M \times P) > C$$

Where

Ch = Change
D = Dissatisfaction with the status quo
M = A new model for managing or organizing
P = A planned process for managing change
C = Cost of change to individuals and groups

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[1] W. L. French and C. H. Bell, Jr., *Organization Development: Behavioral Science Interventions for Organization Improvement*, 2d ed. © 1978, p. 93. Reprinted by permission of Prentice-Hall, Inc., Englewood Cliffs, N.J.

From this formula, it can be seen that change will occur only when sufficient (relative to the cost of change) dissatisfaction (D) exists with the status quo by those individuals in the organization who must change. The source of this dissatisfaction may be due to *internal* pressures (e.g., high rates of turnover, absenteeism, grievances, sabotage, theft) and/or *external* pressures (e.g., inability to remain competitive in price or new products and services). These pressures may lead to crises, which may in turn lead to dissatisfaction. People in organizations frequently become dissatisfied and are motivated to action problems before they get to the crisis stage (Lawler & Rhode, 1976). The best example of this is how rapidly managers respond to a measurement and control system that indicates the existence of financial problems in their unit.

Dissatisfaction is not a sufficient condition for organizational change, since managers can easily blame forces beyond their control (i.e., make external attributions) for the current problems. Successful change requires new models (M) or ideas for handling the problems by the change agent. New models may come in the form of new personnel policies, organization design, pay systems, managerial style, team functioning, and so on. The new models must be communicated by the change agent in a way that is meaningful to the members of the organization. This may involve modeling them (e.g., using a participative and open style of leadership) and/or pointing to successful examples of the new behaviors by others in the organization or in other organizations.

The change process itself must be planned (P) carefully so as to motivate a large number of people to change their behavior. Three alternative processes, each with its own unique advantages, can be used. With *top-down* change, the manager defines the problems based on information gathered from others and develops solutions alone or with the help of immediate subordinates, members of a staff group, and/or a consultant (Beer, 1980). This change process is fast and may get immediate visible results but often does not get long-term employee commitment. *Bottom-up* change occurs where responsibility for defining the problems and developing solutions is assumed by people at lower levels in the organization. It develops commitment in a part of the organization but runs the risk of not generating widespread acceptance. *Shared responsibility* for change occurs when higher and lower levels are jointly involved in identifying problems and developing solutions. This process, used frequently in Japanese organizations, is slower but generates more widespread and long-term commitment. Finally, to sustain change and prevent what Kurt Lewin called "refreezing" (Schein, 1961), the OD intervention must have early success and must be positively reinforced by top-level management (Latham & Wexley, 1981). Now that we have discussed the processes underlying organization change, let us examine some examples of typical OD interventions.

VARIETIES OF OD INTERVENTIONS

An OD intervention is any set of structured activities that selected target groups or individuals are asked to participate in for the purpose of organizational improvement (French & Bell, 1978). There are many different varieties of OD interventions and, consequently, many different kinds of classificatory schemes that have been suggested. We prefer to classify OD interventions according to the size of the organizational unit (i.e., individual, dyads/triads, teams and groups, intergroup relations, total organization) involved as the target. Figure 12–2 presents a classification of several of the many types of interventions currently in use. Notice that some interventions are listed in more than one category, since they are used at various levels in an organization.

FIGURE 12–2
Classification of OD interventions (according to size of organizational unit)

Organizational unit	*Types of interventions*
Individuals	Life and career planning. Grid OD phase 1. Role analysis technique. Coaching and counseling.
Dyads/triads	Grid OD phases 1, 2. Process consultation.
Teams and groups	Survey feedback. Grid OD phases 1, 2. Role analysis technique. Team building—family groups. Process consultation.
Intergroup relations	Survey feedback. Grid OD phase 3. Process consultation.
Total organization	Survey feedback. Management by objectives. Grid OD phases 4, 5, 6. Scanlon plan.

Adapted from W. L. French and C. H. Bell, Jr., *Organization Development—Behavioral Science Interventions for Organization Improvement* (Englewood Cliffs, N.J.: Prentice-Hall, 1978), p. 112.

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Intergroup relations	Survey feedback. Grid OD phase 3. Process consultation.
Total organization	Survey feedback. Management by objectives. Grid OD phases 4, 5, 6. Scanlon plan.

Adapted from W. L. French and C. H. Bell, Jr., *Organization Development—Behavioral Science Interventions for Organization Improvement* (Englewood Cliffs, N.J.: Prentice-Hall, 1978), p. 112.

Life and career planning interventions

One of the newer types of OD interventions focuses on helping individual organizational members plan their life and career goals. Individuals differ greatly in how they make career decisions. Numerous factors, such as childhood experiences, social class, nonwork activities, values, attitudes, educational level, and job experiences, can influence career aspirations. A single factor, such as the challenge an individual experiences during the first year in a career, can have a substantial impact on career plans as well as commitment to an organization (Berlew & Hall, 1966).

Life and career planning interventions are particularly meaningful for individuals who have given little thought about their future, who feel that they are stagnating in their current position, who are experiencing a forced demotion, who are thinking about making some sort of career change, or who no longer have any upward (only lateral) mobility. Generally, the program deals simultaneously with an individual's overall life aims as well as specific career orientations. The importance of this type of career counseling from the organization's point of view can be seen by the high turnover figures reported. Studies of college graduates indicate that five years after graduation more than half of them change organizations, and some even change occupations (Porter, Lawler, & Hackman, 1975). Studies of nonmanagement personnel show similar trends. Although much of this turnover is unavoidable, some of it can be reduced by helping individuals to formulate realistic life and career goals as well as plans for achieving them. Sometimes this intervention can cause an individual to leave an organization if it becomes evident that the organization cannot provide what the person wants.

The life and career planning exercises used focus on the individual's past, present, and future. These interventions last anywhere from one day to an entire week. Participants first work on the exercises individually and then discuss their data in small groups of about 10 to 15 people. The exercises include such activities as writing a hypothetical obituary about yourself, describing a fantasy day, responding to the question "Who am I?" and preparing a career/life inventory of important experiences you have had and would like to have in the future. In order to give you a clearer idea of what these exercises are like, one series of exercises is given below. You might find it informative to complete this life-goal exercise individually and then discuss it in small groups.

I. First Phase
   A. Draw a straight horizontal line from left to right to represent your life span. The length should represent the totality of your experience and future expectations.

- B. Indicate where you are now.
- C. Prepare a life inventory of important "happenings" for you, including the following:
  1. Any peak experiences you have had.
  2. Things which you do well.
  3. Things which you do poorly.
  4. Things you would like to stop doing.
  5. Things you would like to learn/to do well.
  6. Peak experiences you would like to have.
  7. Values (e.g., power, money, etc.) you want to achieve.
  8. Things you would like to start doing now.
- D. Discussions in subgroups.

II. Second Phase
- A. Take 20 minutes to write your own obituary.
- B. Form pairs. Take 20 minutes to write a eulogy for your partner.
- C. Discussions in subgroups.[2]

Grid organization development

Robert Blake and Jane S. Mouton have designed one of the most thorough programs of organization development. Grid® organization development is a six-phase program lasting anywhere from three to five years. It begins by examining individual managerial behavior and style, and then it systematically widens its focus to the team or group, to intergroup relations, and finally to the total organization. The program utilizes a variety of problems, questionnaires, and exercises that allow individuals and groups to identify their own strengths and weaknesses. All phases of the program are conducted by the organization's own members who have been trained in grid methodology.

Basic to Grid OD is Blake and Mouton's (1964) concept of leadership—best described as "the managerial grid." As shown in Figure 12–3, there are two basic dimensions for describing the behavior of individual managers: *concern for production* and *concern for people.* The first dimension, comparable to the concept of "initiating structure" described by the Ohio State leadership studies (see Chapter 7), is shown on the horizontal axis of the grid. Concern for people is comparable to the concept of "consideration." Figure 12–3 shows that concern for production and concern for people can range from low (1) to high (9) yielding 81 (i.e., 9 × 9) possible kinds of managerial leadership styles and orientations. For instance, it is possible for a manager to show a high concern for production while showing little concern for people

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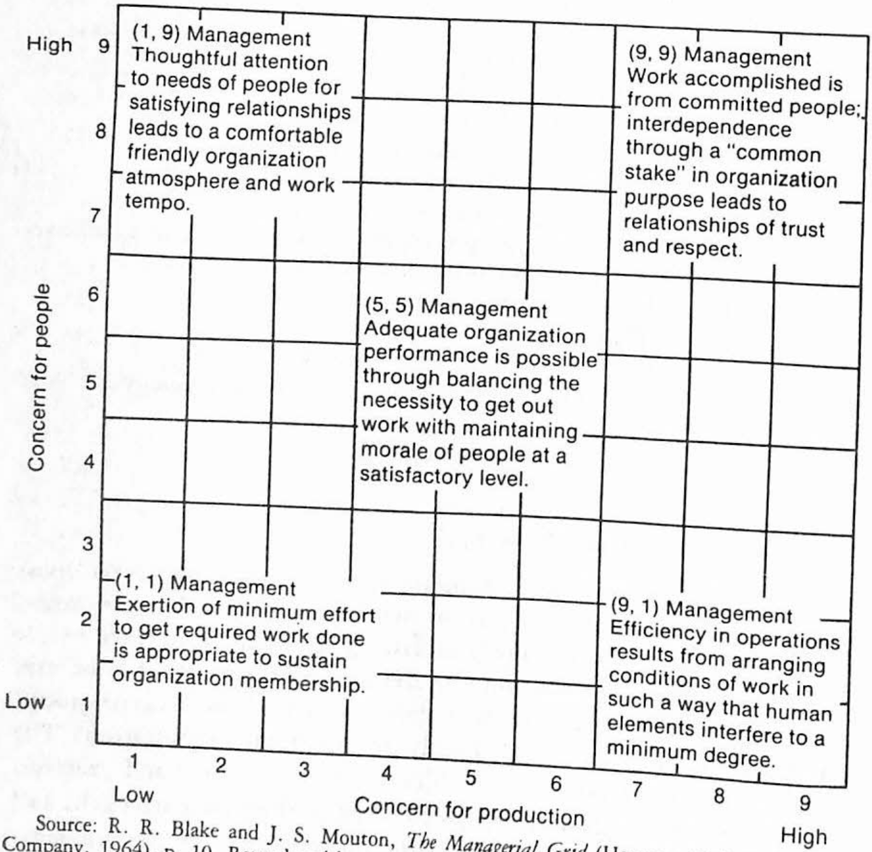
[2] These exercises are representative of those attributed to Herbert A. Shepherd. For more information see French and Bell 1978, p. 147, and E. F. Huse, 1975, pp. 266–269.

FIGURE 12–3
The Managerial Grid®


(1, 9) Management
Thoughtful attention to needs of people for satisfying relationships leads to a comfortable friendly organization atmosphere and work tempo.
(9, 9) Management
Work accomplished is from committed people; interdependence through a "common stake" in organization purpose leads to relationships of trust and respect.
(5, 5) Management
Adequate organization performance is possible through balancing the necessity to get out work with maintaining morale of people at a satisfactory level.
(1, 1) Management
Exertion of minimum effort to get required work done is appropriate to sustain organization membership.
(9, 1) Management
Efficiency in operations results from arranging conditions of work in such a way that human elements interfere to a minimum degree.
High
Low
Concern for people
1
2
3
4
5
6
7
8
9
Low
High
Concern for production

Source: R. R. Blake and J. S. Mouton, *The Managerial Grid* (Houston: Gulf Publishing Company, 1964), p. 10. Reproduced by permission.

(i.e., a "9,1" manager). Another manager may have a low concern for production and a high concern for people (1,9). The manager with a 5,5 orientation shows an intermediate concern for both production and people. For Blake and Mouton, the most desirable manager is the 9,9 individual, who exhibits simultaneously a high concern for production and people. Their OD intervention *assists* management in changing toward a 9,9 approach, which cannot be fully attained without certain improvements and changes in the total organizational system.

Before an organization adopts a Grid OD program, certain key managers who will later be instructors in the organization are selected to attend a Grid seminar where they learn about Grid concepts. During this preliminary phase, these managers determine whether or not Grid OD is a good idea for their organization. If they decide to use Grid OD, they will often attend a pilot Phase 1 for volunteer managers before deciding to initiate a full-scale program.

Let us look briefly at the six-phase program typically employed by Blake and Mouton (1968):

Phase One: The Grid Seminar Several teams are formed, each consisting of five to nine managers who come together for an entire week. Ideally, each team consists of members representing different departments, divisions, and levels within the organization. During this phase, participants assess their own Grid styles, develop team action skills, work at achieving unobstructed communication within their teams, develop problem-solving and critiquing skills, and learn to analyze the culture of their team and of the existing organization using grid concepts. During this stage, all managers in the organization learn all theories of the Grid as well as the 9,9 theory.

Phase Two: Team Development Week-long seminars are held again, this time with actual work teams (i.e., a manager and subordinates). As with phase 1, this stage is conducted away from the job setting and begins with top-level management participation. The objective is to perfect teamwork by having each team analyze and improve its problem-solving, planning, goal-setting, and communication skills. In addition, each manager is given feedback as to his or her individual and team behavior; this allows the managers to see themselves as other team members do.

Phase Three: Intergroup Development Teams having important working relations with one another come together in pairs to create better cooperation and coordination. Key members on each team work together to discuss the key elements that would be needed if an ideal relationship existed between them (e.g., "the other team would allow us to use their computer facilities"). Joint discussions are then held between the key members of both teams to share ideas. Next, each team works separately to develop action steps to move toward the ideal situation the two groups jointly defined.

Phase Four: Developing an Ideal Strategic Corporate Model The top management group, consisting of the head of the organization and those reporting directly to him or her, are charged with the task of designing an ideal strategic corporate model. This model defines exactly what the organization would be like if it were truly perfect. The team convenes for a week to discuss such things as organization structure, advertising strategies, marketing procedures, and financial planning. It may take the team as long as a year to develop the final model. As the model progresses, it is discussed with subordinate managers to get their evaluations and commitment.

Phase Five: Implementing the Ideal Strategic Model Implementing the model involves the following: (1) designing logical subunits of the organization that are fairly autonomous (e.g., product lines, profit centers, geographical areas); (2) appointing planning teams to each subunit to study how the subunit can be moved more in line with the ideal strategic model; (3) appointing a coordinator to serve as a resource person for the various planning teams; (4) establishing an additional planning team to design a headquarters and evaluate whether the supervision and services provided by the headquarters to the subunits are justified. Possibly some of these services (e.g., developing investment capital) might be more efficiently handled within the subunit itself.

PHASE SIX: SYSTEMATIC CRITIQUE The final phase is an extremely important one. It involves a systematic critiquing and evaluation of the change program. Quantitative measurements should be taken at the beginning of the program as well as during and after each stage. This phase will indicate what progress has been made, what obstacles still exist, and what directions should be taken in the future.

The major evidence cited to support grid OD is a study by Blake, Mouton, Barnes, and Greiner (1964). It involved all 800 managers and technicians in a 4,000-member division of a large petroleum company. The firm experienced a considerable rise in profits, increase in productivity per worker-hour, and decrease in costs while the grid program was in effect. Other improvements attributed to the program were increased frequency of meetings among managers, changes in criteria for management appraisals, increase in number of transfers within the plant (i.e., greater flexibility), increased emphasis on teamwork and problem solving, and a pronounced shift toward 9,9 values. The results of this research, however, must be viewed with caution. Since no control or comparison group was used, we have no way of knowing whether factors (e.g., changes in the economy) other than the OD intervention caused the improvements. Some measures were quite subjective and anecdotal, and many of them were not collected both before and after the intervention as they should have been. Therefore, considerably more evidence is needed before any definitive statements can be made.

Process consultation

Process consultation is a difficult concept to describe because it cannot be linked with any particular kind of OD intervention. Instead, it involves a skilled third party (consultant) coming into an organization to help individuals and groups diagnose and solve their own problems using various kinds of interventions. The best source on the concept of process consultation is a book by Edgar H. Schein (1969), who defines it "as a set of activities on the part of a consultant which helps the client to perceive, understand, and act upon process events which occur in the client's environment" (p. 9). According to this definition, the consultant does not offer an organization "expert advice" or "look them over," much the way a doctor looks over a patient. Instead, the consultant works jointly with the members of the organization to diagnose the problem and helps them learn to see problems for themselves and be actively involved in generating a remedy.

Schein presents a broad categorization of some of the OD interventions a process consultant might use:

1. *Agenda-setting interventions.* The purpose of this type of intervention is to make the group more aware of its own internal processes by:
   a. Holding special "process analysis sessions" after regular business meetings to direct the group's attention to such issues as its communication patterns and leadership styles.
   b. Having the group complete a postmeeting reaction form (see Figure 12–4), tabulate their own data, and discuss the results.

FIGURE 12–4
Sample form for analyzing group effectiveness

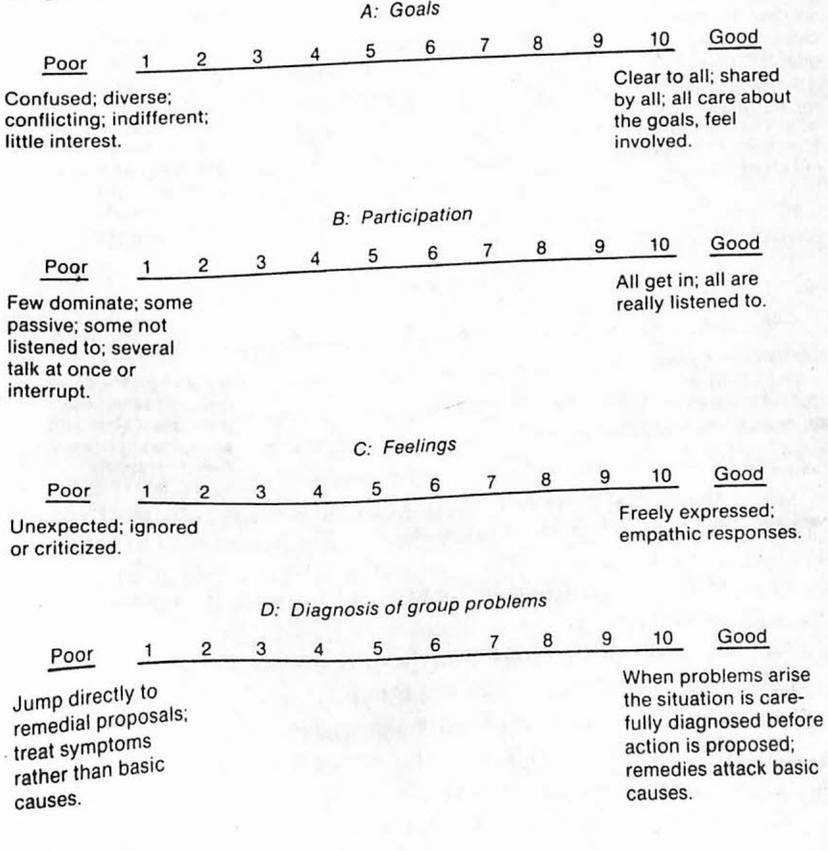

A: Goals
Poor
1 2 3 4 5 6 7 8 9 10
Good
Confused; diverse; conflicting; indifferent; little interest.
Clear to all; shared by all; all care about the goals, feel involved.
B: Participation
Poor
1 2 3 4 5 6 7 8 9 10
Good
Few dominate; some passive; some not listened to; several talk at once or interrupt.
All get in; all are really listened to.
C: Feelings
Poor
1 2 3 4 5 6 7 8 9 10
Good
Unexpected; ignored or criticized.
Freely expressed; empathic responses.
D: Diagnosis of group problems
Poor
1 2 3 4 5 6 7 8 9 10
Good
Jump directly to remedial proposals; treat symptoms rather than basic causes.
When problems arise the situation is carefully diagnosed before action is proposed; remedies attack basic causes.

FIGURE 12–4 *(concluded)*

E: Leadership

Poor 1 2 3 4 5 6 7 8 9 10 Good

Poor	Good
Group needs for leadership not met; group depends too much on single person or on a few persons.	As needs for leadership arise various members meet them ("distributed leadership"); anyone feels free to volunteer as he sees a group need.

F: Decisions

Poor 1 2 3 4 5 6 7 8 9 10 Good

Poor	Good
Needed decisions don't get made; decision made by part of group; others uncommitted.	Consensus sought and tested; deviates appreciated and used to improve decision; decisions when made are fully supported.

G: Trust

Poor 1 2 3 4 5 6 7 8 9 10 Good

Poor	Good
Members distrust one another; are polite, careful, closed, guarded; they listen superficially but inwardly reject what others say; are afraid to criticize or to be criticized.	Members trust one another; they reveal to group what they would be reluctant to expose to others; they respect and use the responses they get; they can freely express negative reactions without fearing reprisal.

H: Creativity and growth

Poor 1 2 3 4 5 6 7 8 9 10 Good

Poor	Good
Members and group in a rut; operate routinely; persons stereotyped and rigid in their roles; no progress.	Group flexible, seeks new and better ways; individuals changing and growing; creative; individually supported.

Source: Adapted from E. H. Schein, *Process Consultation: Its Role in Organization Development* (Reading, Mass.: Addison-Wesley, 1969), pp. 42–43.

c. Helping the group to analyze and improve its agenda-setting procedures.

d. Setting up meetings away from the office to explore interpersonal processes within the group.

e. Presenting to the group relevant elements of theory about individuals, groups, and the management process.

2. *Feedback of observations or other data.* This intervention consists of the consultant feeding back observations or interview results to

either individuals or groups. This is only an appropriate intervention when the group or the individuals have indicated a readiness to hear this feedback.

3. *Coaching or counseling of individuals or groups.* The giving of feedback to either individuals or groups inevitably leads to the question, How can I (or we) change to achieve better results? At this point, the consultant becomes a counselor or coach. According to Schein, the consultant's role should become one of helping the individual or group to evaluate various alternative courses of action. At no time should the consultant give the client advice; the role must be a nondirective one.
4. *Structural suggestions.* The consultant helps the client to generate solutions to such structural problems as how work should be allocated, how communications should be altered, or how committees should be reorganized. The consultant can help the client to assess the consequences of different alternatives or suggest alternatives that have not been considered.

Survey feedback

Survey feedback is a systematic method of collecting data about a total organization, feeding back these data to groups at all levels within the organization, and asking these groups to use the information as a basis for planning and taking corrective action. This technique originated in 1947 at the University of Michigan. Today, the University of Michigan's Institute for Social Research (ISR) is the largest provider of the survey feedback method. Thus, let us examine the steps involved in their approach.

1. Top-level management must be involved in the initial planning.
2. The Survey of Organizations questionnaire is administered anonymously to all organizational members. The current 1980 edition of the Survey of Organizations yields the measures shown in Figure 12–5. Also included in the questionnaire are questions measuring respondent demographic characteristics and several questions measuring supervisory needs. Finally, space is included for an organization to add some of its own questions. Shown in Figure 12–6 are two items taken from the latest edition containing 125 items as well as answer spaces for up to 75 additional questions.
3. The ISR computer analyzes the results. Separate tabulations are provided for each group and for each higher level of responsibility within the organization. In addition, ISR provides a diagnostic report describing principal strengths and problems in the organization.

FIGURE 12–5
Measures found on the Survey of Organizations questionnaire

Organizational climate
  Organization of work
  Communication flow
  Emphasis on human resources
  Decision-making practices
  Influence and control
  Absence of bureaucracy
  Coordination
  Job challenge
  Job reward
  Job clarity
  Work interdependence
  Emphasis of cooperation

Supervisory explanatory indexes
  Interpersonal competence
  Involvement
  Administrative scope

Supervisory leadership
  Managerial support
  Managerial goal emphasis
  Managerial work facilitation
  Managerial team building
  Encouragement of participation

Peer relationships
  Peer support
  Peer goal emphasis
  Peer work facilitation
  Peer team building

End results
  Group functioning
  Satisfaction
  Goal integration

Source: Reprinted from K. Wexley and G. Latham, *Developing and Training Human Resources in Organizations* (Glenview, Ill.: Scott, Foresman, 1981), p. 173.

4. A consultant feeds back the information to the top executive team and then through the hierarchy in functional teams.
5. Each manager meets with subordinates to interpret the data and make corrective action plans. The consultant attends all the meetings to help the group relate the data to its own specific situation and set action goals.

The effectiveness of survey feedback is supported by research results reported by David Bowers of the Institute for Social Research. This research is probably the most comprehensive and elaborate evaluation

FIGURE 12–6
Sample items from the Survey of Organizations questionnaire

To what extent are you clear about what people expect you to do on your job?
1. To a very little extent.
2. To a little extent.
3. To some extent.
4. To a great extent.
5. To a very great extent.

Overall how satisfied are you with your supervisor?
1. Very dissatisfied.
2. Somewhat dissatisfied.
3. Neither satisfied nor dissatisfied.
4. Fairly satisfied.
5. Very satisfied.

of OD interventions to date. Bowers (1973) analyzed data from nearly 15,000 white- and blue-collar respondents in 23 organizations in which various OD interventions were carried out. Four types of interventions (survey feedback, two varieties of process consultation, and T-group training) were compared with each other and with two control groups in which there was no systematic change attempt. The dependent variables for evaluating the interventions were changes in organizational climate, leadership behavior, and job satisfaction. In general, the results showed that survey feedback was usually more effective than the other three kinds of interventions.

More recent research, based upon answers given on the Survey of Organizations, suggests that there are 17 distinct types of work groups common to both civilian and navy organizations. Five different intervention strategies (i.e., survey feedback, data handback, T-group training, talk process consultation, interpersonal process consultation) were compared to determine their positive and negative effects in these 17 different types of work groups. Survey feedback was found to be the most effective across work groups compared with the other four strategies (Bowers & Hausser, 1977).

The survey feedback approach is closely related to a larger theory of management proposed by Likert called System 4 Theory (Likert, 1976). System 4 Theory was discussed previously in chapter 11 and provides some of the theoretical foundation for survey feedback.

It should be noted that many organizations are effectively using survey feedback methodology without the assistance of ISR. These organizations have found it quite advantageous to develop and use their own tailor-made survey questionnaires.

Team-building interventions

An organization's competence depends greatly on the ability of its individuals to work effectively in teams. This is especially true today, since organizations must deal with increasingly complex technological problems that can no longer be handled by single individuals. Thus, improving the effectiveness of various teams within organizations is one of the most important functions performed by OD specialists. Some interventions are directed at family groups (a permanent team consisting of a superior and several subordinates), and others are directed at special groups, such as temporary teams created to tackle specific tasks, ad hoc committees, and newly formed groups. The interventions are usually focused on one or more of the following objectives: (1) clarifying role expectations and obligations of team members; (2) improving superior-subordinate or peer relations; (3) improving problem solving, decision making, resource utilization, or planning activities; (4) reducing conflict; and (5) improving organizational climate.

Let us now briefly examine a few of the more widely used team intervention strategies.

ROLE ANALYSIS TECHNIQUE (RAT). This technique is designed to improve team effectiveness by clarifying the role obligations of each team member and explicating what others expect in terms of fulfilling particular roles. The intervention consists of a structured series of meetings in which each individual lists the specific duties and responsibilities of the job with the help of peers, lists what is expected from others, learns what others expect from the individual, and leaves the program with a written summary of his or her complete team role. This strategy is particularly useful with newly formed teams but can also be helpful with family groups in which role ambiguity exists.[3]

FAMILY GROUP DIAGNOSTIC MEETING The primary purpose of this intervention is to identify a team's problems (if any), not to solve them. Typically, a team leader and an OD consultant agree that this approach would be beneficial; they then discuss it with the group members to get their reactions. If everyone agrees to proceed, the consultant schedules a half- or full-day team meeting away from the work situation itself. Prior to the meeting, the consultant asks each member to think about such questions as these: Can this team be more effective than it is? What are we doing correctly and incorrectly? Are we getting along and communicating with one another as well as we should? The consultant often interviews some or all of the members before the general meeting. At the meeting, all the diagnostic information is shared among the team members. They identify and discuss their problem areas and attempt to generate *preliminary* action steps. One of these action steps may be the scheduling of a "family group team-building meeting."

FAMILY GROUP TEAM-BUILDING MEETING This intervention is somewhat similar to the family group diagnostic meeting in its general sequence of events. However, unlike the previous method, it has the goal of improving team effectiveness by deciding upon the action steps to be taken (i.e., who is to do what) in order to solve problems. The group meeting typically lasts two or three days instead of just a day or less. Usually, more than one group meeting is needed to ensure that the intended changes take place and remain stable over time. Despite the term *family,* this technique can be used with either family or special groups.

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[3] See Dayal and Thomas, 1968, pp. 473–506 for a description of how this technique was used to clarify top management roles in a new Indian organization.

A case example of a team development intervention is provided by Schmuck, Runkel, and Langmeyer (1969). Their program was aimed at improving the organizational functioning of a junior high school faculty by improving its problem solving, openness, and ease of interpersonal communication. The intervention sought to increase the effectiveness of the faculty as a whole, not to produce individual development. It involved almost the entire staff of the school, including secretaries, the head cook, and the head custodian, as well as the faculty and administrators. The program was started just prior to the academic year and continued periodically until February.

The consultant invited all 54 trainees to verbalize the frustrations they experienced in the school. Three problems emerged as being most significant: insufficient role clarity, failure to draw on staff resources, and low staff involvement and participation at meetings. Three groups were then formed, each to work through a problem-solving sequence to reduce one of these problems. Each of these groups arranged for the entire staff to break into subgroups to participate in various simulation and discussion exercises (e.g., communication, decision making, nonverbal behavior). The researchers reported a number of observable, although anecdotal, changes within the school after the intervention (for example, improved relations between principal and staff and less mistrust among teachers). In addition, they compared their results with conditions in other schools. Using questionnaire data they concluded that members of their experimental school were more supportive of their principal, had more effective faculty meetings, made many more innovations in solving problems, were more willing to share new ideas, and were more willing to take risks to improve their teaching effectiveness.

Although many organizations are currently experiencing team building interventions, there is little empirical research evidence on their effectiveness. Although they sound impressive, this is no substitute for rigorous evaluation.

Management by objectives

Management by objectives (MBO) is an OD approach that has been widely adopted by a number of organizations during the past decade. This approach rests on the following key elements:

1. Measurable, concrete performance goals.
2. Subordinate participation in the setting of goals.
3. Periodic performance review sessions to discuss goal accomplishment.
4. Organizational commitment to the program.

Organizations that have used this approach refer to it variously as "management by objectives," "work planning and review," "management by results," and so on.

The approach is generally credited to Peter Drucker (1954), who stressed the importance of each manager (from the top to the bottom of the organization) establishing objectives for his or her department or unit. Drucker emphasized that these objectives must be consistent with the overall purpose of the organization and that every manager should participate in the establishment of the objectives of the next higher unit. Douglas McGregor (1960) also supported the use of an MBO approach, although his conception of it differed somewhat from that of Drucker. McGregor advocated MBO as a better method of appraising managerial performance than traditional procedures, since MBO involved superior-subordinate agreement on job duties, mutual goal setting, specific action plans for achieving goals, self-appraisals, and the discussion of the self-appraisals with a superior.

Listed below are the steps (adapted from Carroll & Tosi, 1973) that are involved in the MBO process.

Step 1 Ask top management to develop organizational objectives and programs to achieve them. These objectives must be stated concretely, otherwise organizational units will not know how they can contribute to goal achievement. The objective "be the *best* in our industry" is obviously not clear enough. The term "best" must be operationalized in terms of productivity, market penetration, profitability, and so on.

Step 2 Have the top corporate executive meet with all immediate subordinates (e.g., heads of major divisions and departments) to communicate these objectives and plans.

Step 3 Have each department head, based on the information presented in step 2, develop goals, actions, and performance measures for his or her particular organizational unit. These goals are then discussed and agreed upon in a private meeting with the top corporate executive.

Step 4 Ask each department head to meet with immediate subordinates to communicate these goals. Once subordinates understand the commitments made, each subordinate prepares a set of goals and action plans for self and his/her unit, which later is discussed and agreed upon with the department head. The process then continues down the organizational hierarchy.

Step 5 Have intermediate review sessions to review all individual and unit performance in terms of established goals and performance. These sessions should be held on a frequent basis between a single manager and a single subordinate. The meeting should review progress, identify and solve any problems blocking goal attainment, and revise the goals if necessary. The sessions should also be used to provide positive feedback (e.g., praise and recognition) and negative feedback (e.g., constructive criticism).

Step 6 A final review session should be conducted between superior and subordinate to determine which goals were successfully reached and how.

ADVANTAGES AND DISADVANTAGES There are several advantages of MBO. Managers learn what is expected of them by their superiors, know the standards by which their performance will be judged, and are made more aware of their organization's objectives. The program induces managers to interact more with their people, which results in more effective communication and more accurate feedback to subordinates. An MBO program brings about the identification of problem areas, improves organization planning and the organization of work, and forces the setting of specific target dates.

Despite its advantages, there are several problems in implementing MBO programs. Some managers complain that MBO involves an excessive amount of paperwork. There are also those who find it is not consistent with their ordinary managerial style to allow subordinates to participate in goal setting. Some managers do not know how to develop or use performance objectives and must be given special training. It is difficult to develop and measure goals for certain jobs, such as executive vice president, or certain job components (e.g., developing one's subordinates). Thus there tends to be heavy stress on only measurable goals at the expense of unmeasurable ones. Moreover, during a period of rapid change, goals established one day may be outmoded the next. Finally, there is the problem of interdependent jobs in which it is meaningful to set team goals but not individual goals.

Where does this leave us regarding the effectiveness of MBO? In a recent review of 185 MBO case studies, surveys, quasi experiments, and true experiments, Kondrasuk (1981) found some evidence, but not conclusive proof, for the effectiveness of MBO. He concluded that the less sophisticated the research approach (i.e., case studies and surveys versus quasi and true experiments), the more likely the study is to show that MBO works. There is also a tendency for MBO to be more effective on a short-term basis (i.e., less than two years), in the private sector, and in organizations removed from contact with customers (i.e., manufacturing versus banks and hospitals). The main evidence to support MBO to date is the large number of studies in the research literature showing that goal setting improves productivity (Locke, Shaw, Saari, & Latham, 1981). Although MBO encompasses more than goal setting, goal setting is clearly one major component of the MBO process.

The Scanlon plan

The Scanlon plan approach was first proposed in the 1930s by Joseph Scanlon, a union leader in a steel mill facing the prospect of going out of business.[4] After the success of Scanlon's intervention in this plant, he went on to become a top officer in the United Steelworkers Union and, a few years later, a lecturer at the Massachusetts Institute of Technology. Throughout his career, Scanlon publicized his plan, which consists of two basic mechanisms: (1) a new suggestion system for ensuring that all organizational members have an opportunity to participate in decision making and (2) an equitable system of providing rewards for increased productivity.

The participation system involves two types of committees. In each department a *production committee* is established, consisting of one management representative (usually the supervisor of the department) and one or more nonmanagement representatives elected by the people who work in the department. The committee encourages people to make suggestions to improve productivity and meets periodically (every two to four weeks) to discuss these suggestions. The production committee either puts the suggestion into effect immediately or, if the suggestion requires large expenditures of money or interdepartmental cooperation, passes it to a *screening committee.* This committee is composed of top management and an equal or greater number of elected nonmanagerial personnel (sometimes union leaders). This committee meets once a month to decide on all suggestions sent to it by the production committees and to determine whether a bonus is to be paid for the previous month's production. All decisions made by this committee are made by consensus so as to avoid any domination by management.

The equity system is designed to reward everyone (hourly workers to top management) in the company based on the productivity of the *total* organization. Although each organization establishes its own unique Scanlon plan ratio (bonus computation formula), bonuses are usually tied to the total cost of compensating personnel compared with the total sales value of whatever the organization produces. To establish a baseline ratio, the organization reviews its efficiency during the previous three to five years. Once this ratio is established, bonuses are paid whenever monthly productivity exceeds the ratio. Although each employee receives the same percentage bonus (e.g., 2 percent increase in wages or salary), the actual dollars each person takes home depends on his or her base pay. One percent of a vice president's monthly salary will be more than 1 percent of an hourly worker's. Thus, Scanlon plan equity depends greatly on the equity of the company's regular wage and salary system.

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[4] Parts of this section are drawn from Frost, Wakeley, and Ruh, 1974, Chap. 1.

Despite its 40-year history, there have been few well-controlled quantitative studies on the effectiveness of the Scanlon plan. Most of the research has consisted of descriptive or qualitative analyses of the experiences of a small number of organizations. These studies have typically reported: (1) improved labor-management relations, (2) increased acceptance of change, (3) more favorable attitudes toward the company and management, and (4) increased productivity and employee earnings. On the other hand, several companies have reported unfavorable results leading to the abandonment of the plan. Recent research has shown that management attitudes toward employees and participative decision making may influence the continued use of the Scanlon plan in an organization (Ruh, Wallace & Frost, 1973). This finding, coupled with the finding that employees often see the plan as providing less than desired opportunities for participation in decision making, point to needed changes in future implementations of the approach (Goodman, Wakeley & Ruh, 1972).

What, then, does it take for the plan to work successfully? First, management must really be willing to consult with their employees and listen to sharp criticisms about the way the organization is being run. Second, union officers must give up the militant view that their members are always right. Finally, rivalries among groups (i.e., "Why should we work so hard when department X is dragging its feet?"), which are inevitable, must be dispelled through good internal communication within and between groups.

CONDITIONS FOR MAXIMUM OD EFFECTIVENESS

Previous research and experience suggest certain conditions that contribute to the maximal success of the OD process.[5] Let us briefly look at some of the distinguishing features of effective OD programs:

1. There is a realization on the part of key personnel that certain organizational problems must somehow be alleviated.
2. There is commitment and support for the OD effort by top management in the organization.
3. An action research model (preliminary diagnosis, data gathering, feedback, and action planning) is followed. Unfortunately, there are some practitioners who use only those interventions they know best, regardless of the diagnosis made.
4. The OD consultant (either internal or external) is honest and consistent with the client. In addition, the consultant lives up to whatever he or she professes. For instance, a change agent calling for openness must model these behaviors for the client.

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[5] For further discussion on the conditions contributing to optimal success in OD, see French and Bell, 1973, Chap. 15.

5. The change agent keeps everyone concerned informed about what is happening and why. This minimizes everyone's fears and suspicions regarding the purposes of the program.
6. The initial intervention is a highly successful one causing other subunits within the organization to request the same treatment.
7. The external change agent reduces the organization's dependency by developing internal resource people who can take over once the change agent leaves.
8. There is a continual monitoring of the results by the consultant to ensure that the organizational changes remain stable over time.
9. The OD agent acknowledges management's effective practices in the past, rather than acting as though "nothing was right around her until I was brought in."
10. The OD consultant does everything possible to prevent certain high-level managers from interfering with the OD efforts. Interference by a threatening, autocratic-type manager can reverse several months of painstaking OD work.

SUMMARY

In this chapter we have examined the major characteristics of the change programs referred to as organization development. These change programs are broader in scope than the training techniques discussed in Chapter 17 or the motivational techniques described in Chapter 2, although an OD program may include such training techniques as T-groups or such motivational techniques as job enrichment. The general objective of OD is to improve the problem solving, communication, leadership, and conflict-resolution processes of an organization.

An OD program is usually a long-range, large-scale effort rather than being limited to one small subunit of the organization. The targets of the change effort are usually groups rather than individuals, but changes in the attitudes, diagnostic skills, and interpersonal competence of individual employees are also expected to occur. The assumptions underlying OD programs reflect an optimistic, positive view of human nature. People are assumed to have drives toward psychological growth and to be capable of positive change in personality and values. It is also assumed that the effectiveness of groups can be improved by expression of emotions, openness of communication, and participation by members in decision making.

The basic tactic used in organization development is some type of intervention. The major OD interventions include life and career planning, Grid OD, process consultation, survey feedback, and team building. Management by objectives and the Scanlon plan are large-scale change programs that may also be regarded as a form of OD. Although research on OD programs is still limited, a beginning has been made in discovering the conditions for maximizing their effectiveness.

REVIEW AND DISCUSSION QUESTIONS

1. Define or explain each of the following key terms: *action research, survey feedback, process consultation, role analysis technique, family group team-building meeting, survey of organizations, Managerial Grid.*
2. What is the difference between organization development and management development?
3. What are the advantages and problems that sometimes characterize management by objectives?
4. What assumptions about people are implicit in organization development?
5. Discuss the sources of people's resistance to change and what OD interventions must do to overcome this resistance if they are to be effective.
6. What arguments can be made for and against the use of the Scanlon plan?
7. What are the ideal organizational conditions for implementing successful OD interventions?
8. Assuming you are a high-level manager, would you advocate the use of life and career planning interventions in your organization? Do you think that they are beneficial from a cost/benefit point of view?
9. Describe Beer's model of organizational change, and evaluate its usefulness.

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5. The change agent keeps everyone concerned informed about what is happening and why. This minimizes everyone's fears and suspicions regarding the purposes of the program.
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7. What are the ideal organizational conditions for implementing successful OD interventions?
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Part 2

Personnel psychology

13

Performance appraisal

Although much research has been done in recent years on the measurement of employee proficiency, behavioral scientists continue to speak of the so-called criterion problem—the difficulties involved in developing adequate measures of an individual's job performance. Most academicians and practitioners agree that there is much to learn before completely solving this problem.

The purpose of this chapter is to provide the reader with clear and applicable answers to the following questions about employee performance appraisals in organizations:

1. What are performance appraisal measures typically used for in organizations?
2. What are the characteristics of dependable performance appraisal measures?
3. What are some of the appraisal methods currently being used?
4. What are some of the errors and biases that enter into performance appraisals?
5. What are the advantages and disadvantages of the various performance appraisal methods?
6. What are some of the issues involved in implementing performance appraisal programs?

ORGANIZATIONAL USES OF PERFORMANCE APPRAISAL MEASURES

Performance appraisal measures serve many different purposes within an organization. Basically, the uses of these measures fall into two main categories: administrative and individual employee development. Some of the major uses of performance appraisal measures in each category are given below:

Administrative

As a basis for making decisions regarding promotions, layoffs, separations, and transfers (where seniority is not the all-important factor due to unionization).

As a means of determining training needs for various organizational units.

As criteria when validating selection and placement devices.

As a basis for evaluating the worth of training programs and the effectiveness of work schedules, work methods, organizational structure, supervisory styles, working conditions, and equipment.

As a basis for evaluating the productive efficiency of the organization as a whole as well as units within it.

As a method of administering wages and salaries so that they are contingent on performance.

Individual employee development

As a means of identifying employee weaknesses that might be alleviated through additional formal training.

As a means of improving the performance of employees by providing each of them with feedback regarding their performance during periodic appraisal interviews with their superiors.

As a means of increasing employee motivation by establishing behavioral and performance goals.

As a means of encouraging managers to observe the behavior of each of their subordinates and to take an interest in each individual's training and development needs.

As means of pointing out past deficiencies and reinforcing employee strengths.

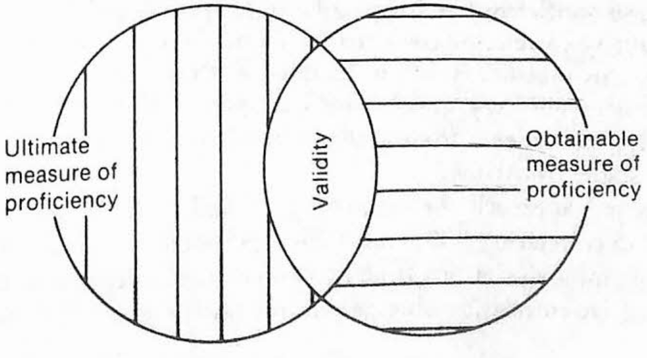
STANDARDS FOR EVALUATING THE ADEQUACY OF A PERFORMANCE APPRAISAL MEASURE

Before any performance appraisal measure is used for administrative or employee development purposes, it must meet three important requirements: validity, reliability, and practicality.

Validity

Validity (sometimes referred to as "relevancy") refers to the degree to which an obtainable measure of proficiency overlaps or is related to an ultimate or true measure of success (see Figure 13–1). Ultimate measures represent the ideal, and it is not feasible to try to obtain them. For instance, an ultimate measure of success for a production worker might be defined as total long-term productive contribution (i.e., quantity of output; quality of output; training costs; time lost by sickness, strikes, accidents; grievances; promotability) to the organization. Since we usually cannot secure ultimate measures of success, we are forced to rely on measures of employee proficiency that are immediately available and are presumed to overlap as closely as possible with the ultimate measure. We can never statistically measure validity, since the ultimate measure is unavailable. Therefore, validity must be determined by the judgments of managers and personnel specialists familiar with the objectives of the organization. The object is to come as close as possible to having complete overlap between the ultimate and obtainable measures. This overlap is usually less than perfect for two general reasons: measurement deficiency and measurement contamination. Measurement deficiency is shown by the area with vertical lines in Figure 13–1. It refers to the fact that the obtained measure may not take into consideration all of the elements found in the ultimate measure. For example, a measure of sales success that accounted for volume of sales but not customer relations would probably be considered to be deficient. Similarly, a measure of success in a production department that consisted of quantity of units but not quality would also be thought of as deficient. Measurement contamination is shown by the area with horizontal lines in Figure 13–1. It is caused by the fact that the obtained measure is impure; that is, it is influenced by factors that are unrelated to the ultimate measure. Variations in the condition of workers' machinery may contaminate a measurement of their individual proficiency. Among a group of press operators, for example, some may appear more productive than others. However, this seemingly productive group may be using newer or more efficient machinery, which accounts for the apparent differences in their productiv-

FIGURE 13–1
Validity, deficiency, and contamination


Ultimate measure of proficiency
Validity
Obtainable measure of proficiency

ity. Many of the human errors discussed later in this chapter can also seriously contaminate proficiency measures.

Validity is by far the most important requirememt of any proficiency measure. Without it, the measure is worthless, since it is not measuring what it is supposed to measure.

The cornerstone of constructing a performance appraisal method that is valid is a technique known as *job analysis*. The federal government's Uniform Guidelines on Employee Selection Procedures (1978) makes this explicit by stating that:

> There shall be a job analysis which includes an analysis of the important work behaviors required fcr successful performance. . . . Any job analysis should focus on work behavior(s) and the tasks associated with them. (Sec. 14.C.2)

Where a job analysis has not been performed, the courts have struck down claims of validity for an instrument even when the appraisal instrument was evaluated by six individuals quite knowledgeable about the job. Specifically, the court rejected the claim that these experts "had in their heads a job analysis sufficient to satisfy legal and professional requirements" (*Kirkland* v. *New York Department of Correctional Services,* 1974).

Reliability

A second important standard for any performance appraisal measure is reliability. A measure of proficiency is reliable to the extent that it gives consistent numerical descriptions of individuals from one time to another or from one evaluator to another. This is assuming, of course, that the characteristic being measured remains constant. One way of assessing reliability is to measure the same group of employees on two separate occasions separated by some period of time. The time interval used (e.g., one year or three months) will depend upon the particular job and proficiency measure used. The degree of consistency between the two sets of measurements is estimated by a statistic known as a correlation coefficient (see Chapter 1). In general, it is desirable to have high positive correlation coefficients. Thus, if one is interested in sales volume, this measure is said to be reliable if each individual's volume of sales does not vary greatly, for example, from month to month. Similarly, assessments from a rater can be considered reliable if they remain stable over time.

A second approach for estimating reliability is to determine the amount of correlation (i.e., consistency) between the appraisals given a group of employees at one time by two or more independent raters. A high positive correlation obtained in this case indicates that employees receiving high ratings from one rater tend to receive high ratings from the others. The converse is also true, that is, individuals obtaining low evaluations from one rater obtain low evaluations from the others.

A third approach for assessing reliability is commonly referred to as internal consistency. Internal consistency is important for appraisal methods that have several components (e.g., rating scales) for each aspect of performance being measured. A performance appraisal method should measure only the aspect of job performance it was designed to measure (Carroll & Schneier, 1982). Internal consistency is determined by examining whether separate components of a measure of performance are highly intercorrelated.

Practicality

Practicality is a final requirement that should not be underestimated. Proficiency measures should be acceptable to management and to the employees being evaluated. In those blue-collar and white-collar jobs where workers are unionized, it is essential that the proficiency measures be supported by the union. This is especially true because unions have traditionally favored seniority in the determination of wages and promotions rather than formal evaluation programs. To ensure this widespread acceptance of the proficiency measures employed, it is advisable to have a planning committee consisting of representatives from each management level and from the union. In this way, the viewpoints of all these groups can be taken into consideration in deciding upon the proficiency measures to be used. Whichever measures are chosen, they should be readily accessible and easily administered so as to save time and money and to minimize disruption of the organization's normal operations. An evaluation system that takes a considerable amount of a manager's time, interferes with productivity, entails an excessive amount of paperwork, or requires a large personnel staff to administer will interfere with organizational effectiveness.

THREE APPROACHES TO MEASURING EMPLOYEE PROFICIENCY

We have already discussed the purpose of performance appraisal and the concepts of validity, reliability, and practicality. With this in mind, we turn our attention now to a discussion of the many different methods of appraising employee proficiency. These methods can be classified into three general categories: (1) subjective procedures, (2) direct measures, and (3) proficiency testing. We shall begin our presentation with the subjective procedures. These procedures involve ratings or judgments of employees' job proficiency made by their superiors, subordinates, peers, outside observers, or self. Since all subjective procedures depend upon judgment and opinion, they are susceptible to certain kinds of human error likely to be found in the evaluation process.

HUMAN ERRORS IN SUBJECTIVE PROCEDURES

Undesirable distortions in subjective measures stem from certain errors in human judgment. What makes these errors so insidious is that in most instances the evaluators are not aware that they are making them; and in those instances in which they are aware, frequently they are unable to correct the judgment. The end result may be an employee who is erroneously promoted, transferred, terminated, or given an undeserved salary increase. These errors can only be minimized by building better appraisal instruments, giving raters special training, and motivating raters to appraise accurately. As we will see later in this chapter, the reduction of human errors does not automatically guarantee the accuracy of ratings.

Leniency, strictness, and central tendency

Some people, when asked to evaluate others, are reluctant to give extremely high or low scores. Instead, they tend to continuously use the center or average point on a rating scale (referred to as central tendency error), even though large differences in proficiency may exist among their subordinates. Others tend to concentrate their ratings toward the upper end (leniency error) or lower end of the scale (strictness error). Every student is familiar with a similar problem involving the assignment of course grades. A grade of *C* from one instructor might be comparable to an *A* from another. Such differences in standards among managers cause problems whenever the evaluations are to be compared between employees in different departments. When such differences in standards exist, the ratings can only be compared by first converting them all to some common numerical scale.

The halo effect

Halo effect refers to the tendency to rate an employee either high or low on many factors because the rater believes the employee is high or low on some single factor. For example, the supervisor who values self-reliance may tend to rate self-reliant subordinates high on characteristics other than self-reliance. Although self-reliance may be an important personal quality needed on the job, it should be evaluated independently of other factors, such as learning ability, emotional stability, leadership ability, and sociability. Unfortunately, there are many supervisors who tend to give a subordinate approximately the same rating on several different factors. One way of reducing halo error is to ask the supervisor to rate all subordinates on the first dimension (e.g., self-reliance), then rate all of the subordinates on the second dimension (e.g., emotional stability), and so on until the subordinates are rated on all the dimensions. At no time should the supervisor refer to the ratings on previous dimensions. Halo error can also be reduced by making the rating scale benchmarks more behavioral and by expressing the factors to be rated in precise terms so that the raters are quite clear about each characteristic they are rating.

Rater characteristics

Certain traits in the raters themselves can influence the accuracy of ratings. For instance, it has been shown that supervisors who are effective in their own jobs are more capable of differentiating between good and poor employees and are less likely to commit leniency error (Kirchner & Reisberg, 1962). Production-oriented supervisors tend to be less lenient than employee-oriented supervisors in rating subordinates (Landy & Farr, 1980). There is also evidence suggesting that better raters have higher intelligence and better analytical thinking ability (Korman, 1971). Finally, it is comforting to report that field research by Wexley and Pulakos (1982) and Mobley (1982) has shown that sex of the rater or ratee does not generally affect ratings.

Rater position in the organization

The accuracy of a rater is also a function of the organizational distance between the rater and ratee—the more organizational distance, the less relevant the ratings. That is, one could expect an immediate supervisor to give more accurate evaluations than a supervisor two or three levels above the ratee. A closely related factor is the rater's firsthand knowledge of the behaviors involved in the job. Generally, the more the rater knows about the critical job behaviors, the more accurate are the ratings. Too often the authors have witnessed ratings based upon inadequate information about the job and/or the ratee. One obvious approach for reducing errors due to rater characteristics is to ensure that all raters are well acquainted with the jobs and employees involved. This will involve providing the rater with the time and opportunity to observe employees' job behavior.

Personal bias

Such factors as an employee's physical attractiveness, race, ethnic background, seniority in the organization, level of education, social standing in the community, job experience, age, personality, and organizational unit can distort a manager's rating. Even the most conscientious rater may have a tendency to rate higher those subordinates perceived as being similar to himself/herself ("similar-to-me" effect) in terms of biographical background, attitudes, and behavior patterns (Pulakos & Wexley, 1983). For instance, you may meet all the requirements of the job, but if you like bowling and I like playing golf, if you are a Republican and I am a Democrat, if your father is a janitor and my father is a company president, and if you are the subordinate and I am the manager, your chances of obtaining a high rating might be substantially reduced.

The operation of sex-role stereotypes (Schein, 1975) may also distort performance ratings. Two examples of this might be: "Ruth is definitely corporate high potential, but I just can't see having her as a senior vice president," or "Robert may have all the abilities, but I certainly cannot tolerate having a male secretary."

SUBJECTIVE PROCEDURES

The personnel specialist has a large number of subjective procedures available for appraising the job performance of employees. Among the procedures that can be used are the following:

1. Rating scales:
    - *a.* Graphic and multiple-step rating scales.
    - *b.* Behavioral Observation Scales (BOS).
    - *c.* Behaviorally Anchored Rating Scales (BARS).
2. Checklist:
    - *a.* Weighted.
    - *b.* Forced-choice.
3. Employee comparison:
    - *a.* Alternation ranking.
    - *b.* Paired comparison.
    - *c.* Forced distribution.
4. Critical incident.
5. Group appraisal.
6. Essay evaluation.

Graphic and multiple-step rating scales

There are several different formats rating scales can take (see Figure 13–2). With "graphic" or continuous rating scales (examples *a* and *b*) the rater is asked to place a check mark anywhere along the line. This type of scale is scored by using a ruler to measure the distance checked

FIGURE 13–2
Examples of typical rating formats

a. Ability to get along with others

Poor	Below average	Average	Above average	Excellent

b. Quality of work

Poor	Exceptionall good

c. Motivation and enthusiasm

☐	☐	☐	☐	☐
Poor	Below average	Average	Above average	Excellent

d. How would you rate this employee's overall job proficiency?

☐	☐	☐	☐	☐
In the bottom 10 percent of workers	In the next 20 percent of workers	In the middle 40 percent of workers	In the next 20 percent of workers	In the top 10 perce of workers

e. Attitude toward work and employer (check only one)

☐	☐	☐	☐	☐	☐
Does as little as can get by with	Only mildly interested in work	Occasionally has to be urged or warned	Attitude more satisfactory than of most workers	Attitude toward work and employer as desirable as could be wished	Eager to do all that is called for

along the line. Multiple-step, or discrete scales, provide the rater with several alternative categories from which to choose. The points on the scale may be defined through adjectives (example *c*), numbers (example *d*), or short phrases (example *e*).

Despite their widespread popularity with raters, it is clear that these simple rating formats are extremely susceptible to the human errors discussed previously. Think for a moment how easy it would be for an evaluator to bias ratings for or against a particular subordinate using any of these formats. Imagine, too, how vulnerable these scales are to leniency, strictness, central tendency, and halo errors. For these reasons, the usefulness of these conventional rating scales is limited.

Are there ways to develop a rating scale that is acceptable to raters and, at the same time, reduces human errors? The procedures originally suggested by Latham and Wexley (1981) for developing Behavioral Observation Scales (BOS) and Smith and Kendall (1963) for developing Behaviorally Anchored Rating Scales (BARS) attempt to satisfy both of these requirements.

GURE 13–3
ample of a portion of a Behavioral Observation Scale for appraising department re sales managers

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This checklist contains key job behaviors identified by managers as being critical for improving the contributions of sales managers to the efficiency/effectiveness of our department store chain.

Please consider the above-named sales manager's behavior on the job in the past rating period. Read each statement carefully. Circle the number that indicates the extent to which the sales manager has demonstrated this behavior.

For each behavior:

A *5* represents *almost always* or *95–100 percent* of the time.
A *4* represents *frequently* or *85–94 percent* of the time.
A *3* represents *sometimes* or *75–84 percent* of the time.
A *2* represents *seldom* or *65–74 percent* of the time.
A *1* represents *almost never* or *0–64 percent* of the time.
An *NA* represents *not applicable*— if you haven't had the opportunity to observe this behavior.

An example of an item is shown below. If a sales manager comes to work on time 95–100 percent of the time, you should circle a 5. If the manager hardly ever comes on time, you should circle a 1.

	Almost Never				*Almost Always*	
EXAMPLE: Comes to work on time.	1	2	3	4	5	NA

Part One: Individual Sales Productivity

	Almost Never				*Almost Always*	
1. Reviews productivity results with salespeople.	1	2	3	4	5	NA
2. Does not keep individual sales management information packets up to date.	1	2	3	4	5	NA
3. Fails to post weekly sales results.	1	2	3	4	5	NA
4. Suggests to salespeople ways of making multiple sales.	1	2	3	4	5	NA
5. Gives suggestions to salespeople on how to improve goal results.	1	2	3	4	5	NA
6. Makes time to talk with employees who have questions or problems.	1	2	3	4	5	NA

Behavioral Observation Scales (BOS)

An example of a behavioral observation scale can be found in Figure 13–3, which the reader should examine before reading about the procedures used to develop BOS. Latham and Wexley (1981) recommend the following steps for developing BOS.

Step 1: Conduct a job analysis using the critical incident technique Group or individual interviews are held with observers who are aware of the aims and objectives of the job and who *see* people perform the job on a frequent basis. Thus, supervisors, peers, subordinates, and clients may be interviewed about their observations of the critical requirements of the job. These observers are asked to describe to the job analyst incidents of effective and ineffective job behavior that they have observed over the previous 6 to 12 months. Generally, each interviewee is

FIGURE 13–3 *(concluded)*

		Almost Never				*Almost Always*	
7.	Disciplines employees fairly based on consistent standards.	1	2	3	4	5	NA
8.	Conducts written reviews for outstanding or poor salespeople.	1	2	3	4	5	NA
9.	Delegates and prioritizes salespeople's time and work assignments.	1	2	3	4	5	NA
10.	Schedules workload fairly so that jobs are distributed equally.	1	2	3	4	5	NA
11.	Disperses salespeople within the department to provide proper floor coverage.	1	2	3	4	5	NA
12.	Fails to control days off and/or vacation schedules of salespeople.	1	2	3	4	5	NA
13.	Does not notify personnel department of scheduling problems.	1	2	3	4	5	NA
14.	Adjusts schedules without checking with personnel department.	1	2	3	4	5	NA
15.	Fails to post employee schedules promptly.	1	2	3	4	5	NA
16.	Neglects monitoring time entry.	1	2	3	4	5	NA

Total Score ________

Part Two: Customer Service

		Almost Never				*Almost Always*	
1.	Sets a good example using RSS skills.	1	2	3	4	5	NA
2.	Teaches proper usage of RSS skills.	1	2	3	4	5	NA
3.	Reinforces salespeople's use of RSS skills.	1	2	3	4	5	NA
4.	Ensures attendance of selling staff at RSS sessions.	1	2	3	4	5	NA
5.	Allows customers to go unattended when salespeople are busy.	1	2	3	4	5	NA
6.	Backs up company's return policy to the satisfaction of customers.	1	2	3	4	5	NA
7.	Makes special efforts to fulfill customer needs and requests.	1	2	3	4	5	NA
8.	Provides salespeople with product information.	1	2	3	4	5	NA
9.	Notifies salespeople promptly of upcoming ads and promotions.	1	2	3	4	5	NA
10.	Makes special efforts to increase the product knowledge of the sales staff.	1	2	3	4	5	NA
11.	Fails to conduct salesperson shopping on a timely basis.	1	2	3	4	5	NA
12.	Reviews sales manager and customer shopping reports with salesperson on a timely basis.	1	2	3	4	5	NA

Total Score ________

asked to report five effective and five ineffective incidents, and at least 30 people are interviewed for a total of roughly 300 incidents. The job analyst must be skilled in collecting incidents describing observable behaviors. If the interviewee says, "The employee has a poor attitude in dealing with customers," the job analyst must ask, "What exactly did the individual *do* that indicated a poor attitude?" Now, the interviewee's answer might be a list of such observable behaviors as: Argues with customers, refuses to apologize to customers when spilling drinks or dropping food in their laps, and makes customers wait a long time before attending their table.

Step 2: Cluster critical incidents into behavioral items Critical incidents that are similar, if not identical, in context are grouped together to form one behavioral item. For example, two or more incidents concerning a waiter or waitress who answers customer questions about special items on the menu are clustered into a behavioral item: "Explains special items on the menu when customers ask about them."

Step 3: Cluster behavioral items into BOS criteria Behavioral items that are similar are grouped together by job incumbents and/or analysts to form one BOS criterion (see Figure 13–3). Typically, during this step behavioral items can be expected to cluster into about three to eight BOS criteria.

Step 4: Assess interjudge agreement Interjudge agreement is concerned with the issue as to whether another individual or group of individuals would have developed the same behavioral criteria based upon the same critical incidents. The incidents are placed in random order and given to another individual or group who reclassifies the incidents according to the three to eight BOS criteria established in step 3.

Step 5: Assess content validity As mentioned previously, content validity is concerned with the systematic evaluation of a performance appraisal instrument to see if it includes a representative sample of the behavioral domain of interest. Prior to categorization of critical incidents into behavioral items, 10 percent of the incidents should be set aside. After the categorization is completed, these incidents are examined to see if any of them describe behaviors that have not yet appeared. If the incidents that have been set aside can be classified under the existing behavioral items, this suggests that the BOS instrument is content valid (Latham, Fay, & Saari, 1979). For additional methods of assessing content validity, see Latham and Wexley (1981).

Step 6: Instrument construction The appraisal instrument is developed by attaching a five-point Likert scale to each behavioral item. Observers (e.g., supervisors, peers, customers) are asked to indicate the frequency with which they have observed a job incumbent engage in each behavior. An example of one possible format for BOS items is shown in Figure 13–3.

Step 7: Elimination of infrequent items Many behavioral items on the BOS, although critical in terms of defining highly effective or ineffective performance, occur either so frequently or so infrequently that they do not differentiate good from poor job incumbents. For example, such items as "Punches a customer" and "Smiles at customers" do not add to the BOS instrument, since almost every waiter/waitress would receive the same rating. Therefore, these types of items are eliminated.

Step 8: Determine the reliability and weighting of each BOS criterion The reliability (i.e., internal consistency) of each of the BOS criteria is statistically determined. Finally, eventual users of the performance appraisal system are asked to weight the relative importance of the various BOS criteria.

There are several important advantages of constructing behavioral observation scales (Latham & Wexley, 1981). First, they are developed from a systematic job analysis supplied by employees for employees. Thus, understanding and commitment to the use of the appraisal instrument are encouraged. The frequently heard complaint from managers and subordinates that the items on the appraisal instrument are vague or irrelevant to the job are minimized. Second, BOS can serve as a job description, which can be shown to potential job applicants. As such it can give them a realistic preview of what they will be expected to do if hired. This *may* assist applicants in deciding whether they want this job or another and reduce subsequent turnover and job dissatisfaction (Wanous, 1980). Third, BOS are content valid in the sense that the behaviors differentiating the successful from the unsuccessful performer are included on the instrument. Fourth, since BOS can be scored as a total instrument as well as for each BOS criterion, it lends itself to providing individuals with specific performance feedback and goal setting. Generalities are avoided in favor of specific BOS scores and observable behaviors for which the employee is praised and/or monetarily rewarded. In fact, studies have shown that performance feedback using BOS combined with the setting of specific goals can bring about and/or maintain a positive behavior change (Dossett, Latham, & Mitchell, 1979; Latham, Mitchell, & Dossett, 1978). Finally, BOS can satisfy legal requirements in terms of validity and reliability. The content validity, the interjudge agreement of the categorization system, and the reliability of the BOS criteria are usually found to be satisfactory when constructed in the prescribed manner.

Behavioral observation scales also have some limitations. The method relies on raters' perceptions and recall of effective and ineffective behaviors, is susceptible to rater biases, and typically takes longer than other appraisal methods to fill out. Scale length will be a problem if a manager has many subordinates to rate.

Behaviorally Anchored Rating Scales (BARS)

Another excellent behavioral approach for constructing rating scales is referred to either as behaviorally anchored rating scales or behavioral expectation scales. An example of a behaviorally anchored rating scale is shown in Figure 13–4. This type of scale has been used in a wide variety of settings for rating the performance of department store managers, nurses, grocery store clerks, university professors, and engineers (Jacobs, Kafry, & Zedeck, 1980). BARS have at least three main advantages. First, the anchors are behavioral in nature and are expressed in the rater's own terminology. This eliminates much of the ambiguity found in those rating scales that use such phrases as "excep-

FIGURE 13-4
An example of Behaviorally Anchored Rating Scales

Instructions:

First read the name of the dimension and its definition. Then notice the examples which illustrate various points on the rating scale. These examples are included to give you clear anchor points to help you make more accurate evaluations. Don't worry about whether or not your subordinate has actually exhibited the behavior described in the example. By knowing your subordinate, you should be able to judge whether he or she *could be expected* to display the type of behavior described in the example. After reading all the examples on a dimension, decide where on the rating scale the worker belongs by making a checkmark anywhere along the scale. The value you assign can range anywhere from 1 which represents very poor performance to 7 which represents very good performance. This procedure should be followed for each dimension.

Motivation—the worker's desire and willingness to do a hard day's work.

7 –
–This worker could be expected to stimulate enthusiasm about the company and jobs from peers.
–This worker could be expected to be counted on in a crisis.
6 –
–This worker could be expected to do the job without much supervisory follow-up.
5 –
–This worker could be expected to meet the basic requirements of the job.
4 –
3 –
–This worker could be expected to take sick leave whenever the work load becomes high.
–This worker could be expected not to report hazardous working
2 – conditions or defective machinery because the worker doesn't care.
–This worker could be expected to deliberately slow down on the job.
1 –

tionally good," which have different meanings to different raters. Second, BARS may lend themselves to employee development by providing the employee with specific feedback on strengths and areas in need of improvement. This advantage is true to the extent that the manager has had the discipline to systematically record incidents describing the employee's behavior throughout the appraisal period (Bernardin & Smith, 1981). Third, recent research evidence suggests that a common set of scales can be developed for a number of jobs at one time (Goodale & Burke, 1975). For instance, one set of scales might be constructed for an entire family of sales jobs within an organization.

BES/BARS have several limitations, however. Among these is the fact that a substantial number of critical incidents collected during the job analysis are discarded. For example, if seven job categories or performance criteria are identified as important for appraisal purposes, the most incidents that can be used as anchors is only about 49 (seven anchors per scale) out of a possible total of hundreds of incidents that were reported during the job analysis (Latham & Wexley, 1981). Further, raters sometimes have difficulty discerning any behavioral similarity between a ratee's performance and the highly specific behavioral examples used to anchor the scales. They are frequently not able to match observed job behavior directly with the scale anchors (Borman, 1979). In many cases, they either want to make a check mark at *several* points on the rating scale or at *no* points. To illustrate this rating approach, we will go through the steps necessary to construct these rating scales by providing a hypothetical example.

Step 1: Generation of job dimensions Meetings are held with a group of supervisors who are familiar with the job in question. The purpose of these meetings is to identify and define independent dimensions of employee proficiency on the job. The following is an example of four dimensions identified and defined for a production job as a result of these meetings:

Job knowledge: the worker's knowledge of the procedures and materials involved in all phases of the job.

Motivation: the worker's desire and willingness to do a hard day's work.

Interpersonal relations with others: the worker's ability to get along with co-workers and supervision.

Supervision required: the worker's ability to solve problems with a minimum of supervision.

Step 2: Generation of behaviors Each supervisor is asked to provide several behavioral examples for each dimension, reflecting good, average, or poor employee performance. Listed below is an example of the behavioral items that might be submitted by a particular supervisor for the interpersonal relations dimension:

Good. Other workers feel free to discuss personal as well as work-related problems because this worker tries to help.
Average. This worker, when helping co-workers, is friendly, but since the worker sometimes has a know-it-all manner, others feel hesitant about talking with this worker.
Poor. This worker puts blame on co-workers and supervision for own mistakes, which irritates others.

Step 3: Reallocation of behaviors Another group of supervisors is given the list of behavioral examples together with a list of the dimensions and definitions generated in steps 1 and 2. These supervisors are asked to individually allocate each item to the dimension that the example is thought to illustrate. For instance, a supervisor might have read the item "This worker is able to find sensible ways out of most difficulties alone" and assigned it to the "supervision required" dimension. Those items that are not assigned to a dimension by more than a certain percentage (e.g., 60 to 90 percent) of the supervisors are eliminated. By doing this, all ambiguous items are discarded, and independent dimensions of employee proficiency are determined.

Step 4: Assignment of values Each supervisor is given a booklet containing the established dimensions. For each dimension, there is a list of 20 or more items that met the standard established in step 3. The supervisors are asked to read the definition of each dimension and then rate each of the items on a 5- to 9-point rating scale. If a 7-point scale is chosen, a value of 1 indicates that the item describes *very poor* performance on a dimension, a 7 indicates *very good,* and a 4 indicates *average* performance. Supervisors are told that each of the items can have a value of either 1, 2, 3, 4, 5, 6, or 7, depending upon what they themselves think is appropriate. They are told to assign only one value per item and not to leave any items blank. Listed below is an example of the values assigned by one supervisor to a few of the motivation dimension items:

Motivation—the worker's desire and willingness to do a hard day's work.

1. This worker rarely wastes a minute by talking to buddies during work hours. 6
2. This worker encourages others to restrict their output. 1
3. This worker slows down whenever the supervisor isn't there to watch. 3

Only those items with small variations in the scores assigned are retained. That is, the retained items are those on which there is good agreement among supervisors as to the goodness of performance described by it. The final value for each item is determined by averaging all the supervisors' assigned values.

Step 5: Formation of the rating scales The items used as anchors in the final rating scales are reworded from actual behaviors (e.g., "This worker encourages others to restrict output") to expected behaviors (e.g., "This worker could be expected to encourage others to restrict output"). Each item is then assigned to its proper dimension and given its correct position on the scale according to its determined scale value. This results in the type of behaviorally anchored rating scales shown in Figure 13–4. Essentially, raters must decide if a given behavior they have seen could lead them to *expect* any of the behaviors shown along the scale. The evaluators are required to support their check marks by describing the actual behaviors they have observed.

Checklists

Another subjective approach to performance evaluation involves the use of checklists. Unlike rating scales, the rater is typically given a list of behavioral statements and asked to simply report on *having or not having observed* rather than *judging the goodness or frequency of* the ratee's job-related behavior. The two major types of checklists in use are "weighted checklists" and "forced-choice checklists."

WEIGHTED CHECKLISTS Developing a weighted checklist involves three simple steps. First, a large number of statements describing work behavior are collected, ranging from behaviors that are unusually effective to those that are unusually ineffective. The best source of such statements are from written and oral comments made by supervisors about their subordinates' job performance. Second, each statement is scaled by 10 to 15 independent judges as to the degree of employee proficiency that a subordinate described by it would possess. Typically, the judges estimate the desirability of each item by sorting them into 7, 9, or 11 piles with respect to favorable-unfavorable estimates. For instance, supervisors may be asked to place the item "Can be counted on to get a job done on time" in one of the following 11 categories:

1	2	3	4	5	6	7	8	9	10	11
Extremely undesirable (or unfavorable) behavior										Extremely desirable (or favorable) behavior

Only those statements that are consistently scaled by the judges (i.e., have low variability) are employed in the final checklist. For instance, a statement would not be used if perhaps ten judges failed to agree among themselves on its desirability-undesirability (e.g., judgments of 2, 7, 11, 4, 5, 6, 7, 10, 1, and 8). On the other hand, an acceptable statement would have little or no variability in judgments (e.g., 4, 5, 5, 5, 4, 4, 4, 4, 4, and 4). Third, the scale value or weight of each statement is determined by averaging the judges' separate estimates. The weight of the above statement would be: 4 + 5 + 5 + 5 + 4 + 4 + 4 + 4 + 4 + 4 = $^{43}/_{10}$ = 4.3. Table 13–1 shows some items taken from a weighted checklist used to measure the human relations competence of first-line supervisors by their superiors. The superior who uses the checklist simply places a check mark next to any behaviors he or she has seen the individual exhibit in the past. This is different from BOS, wherein raters are asked to report the frequency of occurrence of each behavior. Notice that there are no weights shown on the checklist itself; the rater sees only the statements. The ratee's final score on the checklist is obtained by averaging the weights of all the items checked.

EVALUATION OF THE WEIGHTED CHECKLIST A considerable amount of time and effort is required in obtaining statements having low variability and the full range of scale values. This is especially so because separate checklists must be developed for each job or family or similar jobs. On the positive side, this method provides an excellent vehicle for employee development, since the manager can feed back actual observations of behavior rather than vague impressions.

FORCED-CHOICE CHECKLISTS The forced-choice checklist is one of the more statistically sophisticated, yet least popular, performance appraisal methods. The procedure was developed by a group of industrial psychologists during World War II in order to reduce leniency error in the rating of army officers. The rating form, which must also be constructed specially for each job or job family, consists of 10 to 20 tetrads, or groups of four statements. In each tetrad, the evaluator is asked to check the one statement that is most descriptive of the employee being rated and the one statement that is least descriptive. The tetrads are constructed by a trained personnel specialist who makes sure that each tetrad contains two statements that appear favorable and two statements that appear unfavorable to the rater. In addition, of the two favorable-appearing statements, one of them differentiates between effective and ineffective personnel, and the other does not. Similarly, of the unfavorable-appearing statements, only one of the set actually differentiates between effective and ineffective employees. Essentially, the rater has no idea of whether he or she is evaluating a subordinate favorably because the actual differentiation and favorability values of

TABLE 13-1
An example of a weighted checklist (used to assess human relations competence of first-line supervisors)

Instructions:

The following form is designed to evaluate the human relations competence or (name) ____________. Included in this checklist are examples of behavior you may have observed on the part of this supervisor in the past.

Would you please read each statement and carefully consider whether or not you have observed the behavior described. Then do one of the following:

a. If you can recall having observed the described behavior, please place a check mark (✓) in the place at the left of the statement.
b. If the behavior described has not been observed, or if you do not immediately recall having observed the behavior, leave the space blank.

1. ________ When making a job assignment, discussed significant details of the job with subordinates.
2. ________ Unable to settle personal differences between subordinates.
3. ________ Solicited subordinates' opinions and ideas and tried them whenever possible.
4. ________ Delegated responsibility for an important job, but refused to let subordinate perform it without interfering.
5. ________ Went out of way to give credit to subordinates and compliment them for a job well done.
6. ________ Failed to keep promises to subordinates.
7. ________ Demonstrated tact and patience when listening to a subordinate's gripes.
8. ________ Refused to consider seriously the opinion of others before making an important decision.
9. ________ Gained respect of subordinate by letting him/her "save face" in an embarrassing situation.
10. ________ Failed to apologize to subordinates when wrong.

the statements are kept confidential from the rater. All scoring is done in the personnel department. Two examples of forced-choice tetrads appear in Figure 13-5.

The main advantage of this method is that it reduces the likelihood that raters will intentionally give favorable evaluations to those employees they happen to favor. Since the statements in each tetrad are equated for favorability and unfavorability, the rater has no idea which

FIGURE 13-5
Two forced-choice items (used to evaluate the proficiency of first-line supervisors)

In each group of four statements, select the one statement that you believe most characterizes the employee under consideration. Put an X in the box beside that statement in the column headed M (for *most*). Then consider the remaining three statements in the group. Decide which one of these three is least like the employee and put an X in the box beside that statement in the column headed L (for *least*).

	M	L
Compliments co-workers when they do a good job.	☐	☐
Displays indifference or hasty opposition to the ideas of subordinates.	☐	☐
Remains cool and calm under pressure.	☐	☐
Fails to keep promises to subordinates.	☐	☐
Fails to keep subordinates informed on matters which affect them.	☐	☐
Comes to work before starting time several times a week.	☐	☐
Fails to apologize to subordinates when wrong.	☐	☐
Demonstrates ability to settle personal differences between subordinates.	☐	☐

statements to check in order to fake it. Moreover, the procedure reduces personal bias and leniency error on the part of the rater. Unfortunately, this technique has its drawbacks too. It is costly and time-consuming to construct. It also does not lend itself to feedback of results to employees for development purposes. After all, it is difficult and sometimes embarrassing for a supervisor to discuss ratings of a subordinate during an appraisal interview when the supervisor does not know how the tetrads were scored. Consequently, supervisors typically dislike the method. These negative attitudes may lower the reliability and validity of their evaluations, especially if they intentionally sabotage the entire rating system. Because of this, few organizations currently use this procedure.

Employee comparisons

ALTERNATION RANKING Alternation ranking requires the rater to order individuals from lowest to highest. The usual procedure is to rank employees on the basis of their overall job proficiency. Another approach sometimes used is to first identify the separate dimensions of job proficiency and then rank the employees separately for each dimension. These separate rankings can then be converted into an overall ranking for each worker by averaging the rankings for the separate dimensions.

The ranking procedure is quite simple. Suppose Supervisor A has nine subordinates named Atkins, Rose, White, Dobson, Smith, Childs, Levine, Murphy, and Ortega. Supervisor A would be asked to write down the name of the best worker (White), then the poorest worker (Childs), then the second-best worker (Ortega), then the second-poorest worker (Dodson), and so on, until all nine subordinates are ordered. This "peeling off" process might result in the listing shown below:

1. White
2. Ortega
3. Rose
4. Murphy
5. Atkins
6. Smith
7. Levine
8. Dodson
9. Childs

Supervisor A would have little difficulty distinguishing between the best and poorest workers. The task may be a problem for the supervisor when attempting to differentiate between subordinates (e.g., Murphy, Atkins, and Smith) in the middle range of ability. Although the supervisor may resist making such difficult distinctions, he or she is typically not permitted to assign the same rank to two or more individuals.

Each employee's performance appraisal score is the rank he/she receives from Supervisor A. If two or more raters can be secured who have had equally good opportunities to observe the employees, each employee can be assigned an average rank. Note in the table below that high performance is indicated by a low average rank.

Employee	*Supervisor A*	*Supervisor B*	*Supervisor C*	*Average Rank*
Atkins	5	6	4	5.00
Ortega	2	3	2	2.33
Childs	9	7	7	7.67
Dodson	8	9	8	8.33
Levine	7	8	9	8.00
Murphy	4	4	5	4.33
Rose	3	2	3	2.67
Smith	6	5	6	5.67
White	1	1	1	1.00

Paired Comparisons The method of paired comparisons (more properly called pair comparisons) simplifies and structures the decision-making process of the rater. With this method, the rater is forced to systematically compare each subordinate with every other. For each possible pair of subordinates, the rater simply decides which of the two workers is superior.

In order to compare each subordinate with all others, the rater must make $N(N - 1)/2$ comparisons, where N is the number of employees to be ranked. Imagine a situation where a manager has five subordinates: Hopkins, Miller, Tyson, Haber, and Bingham. In this instance, there will be $5(4)/2 = 10$ possible comparisons:

1. Hopkins versus Miller
2. Hopkins versus Tyson
3. Hopkins versus Haber
4. Hopkins versus Bingham
5. Miller versus Tyson
6. Miller versus Haber
7. Miller versus Bingham
8. Tyson versus Haber
9. Tyson versus Bingham
10. Haber versus Bingham

The first step for the personnel specialist in this particular situation is to prepare 10 cards, each of which contains one of the 10 possible pairs of subordinate names. The cards should be shuffled, and the position of the names on each card should be interchanged so that Hopkins' name, for example, is not always on the left-hand side. The cards should then be presented to the rater, who is asked to check the name of the person preferred on each card. Suppose the manager gave the following judgments concerning the overall proficiency of the five subordinates:

Card#1 ___ Hopkins Miller ✓
Card#2 ___ Hopkins Haber ✓
Card#3 ✓ Bingham Hopkins ___
Card#4 ✓ Miller Tyson ___
Card#5 ___ Tyson Hopkins ✓
Card# 6 ✓ Miller Bingham ___
Card# 7 ✓ Haber Tyson ___
Card# 8 ___ Tyson Bingham ✓
Card# 9 ___ Bingham Haber ✓
Card#10 ___ Haber Miller ✓

The next step for the personnel specialist is to record these judgments in some systematic manner. The most efficient procedure is to summarize the judgments in a matrix by using the following rule: Whenever a rater prefers a column to a row, place a check mark in that matrix cell (Blum & Naylor, 1968). Shown below is a completed matrix summarizing the above judgments:

	Hopkins	*Bingham*	*Miller*	*Tyson*	*Haber*
Hopkins	X	✓	✓		✓
Bingham		X	✓		✓
Miller			X		
Tyson	✓	✓	✓	X	✓
Haber			✓		X
Total number of times preferred over others	1	2	4	0	3

Notice from the "total number of times preferred over others" that this manager rates Miller as best, followed by Haber, Bingham, Hopkins, and Tyson.

The paired-comparison method can also be used when a number of managers or supervisors evaluate the same subordinates. For example, the matrix below includes the hypothetical judgments of three independent managers:

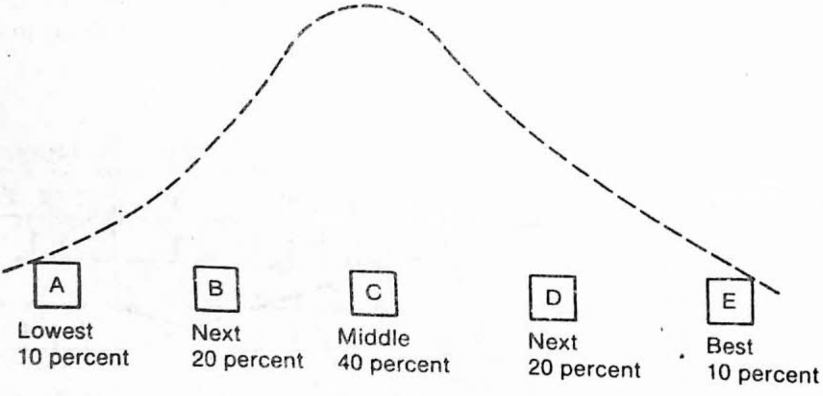
	Hopkins	*Bingham*	*Miller*	*Tyson*	*Haber*
Hopkins	X	✓✓✓	✓✓✓	✓	✓✓✓
Bingham		X	✓✓✓	✓	✓✓
Miller			X		✓
Tyson	✓✓	✓✓	✓✓✓	X	✓✓✓
Haber		✓	✓✓		X
Total number of times preferred over others	2	6	11	2	9

Generally, the more raters there are, the more accurate the estimate of a subordinate's true standing will be.

It is important to remember that the paired-comparison procedure gives a simple ordering of employee proficiency. One cannot use the scores above to speak of the amount of difference between workers. There are, however, ways in which the paired-comparison technique can be modified to allow us to determine how much two employees actually differ in proficiency. These more sophisticated procedures are discussed by Blum and Naylor (1968).

A problem with the paired-comparison method is the large number of judgments a supervisor must make as the number of subordinates increases. If 40 subordinates are involved, for example, the supervisor must make 40 (40 − 1)/2, or 780, comparisons. Fortunately, methods have been developed that reduce the number of comparisons required. Those readers interested in knowing more about reducing the number of pairs are referred to such sources as Lawshe, Kephart, and McCormick (1949) and McCormick and Bachus (1952).

FORCED DISTRIBUTION A final version of the employee comparison approach is the forced-distribution method. This method may be useful only when: (*a*) a large number of subordinates (e.g., 20 or more) are to be evaluated by a single rater; (*b*) rough discriminations among subordinates will suffice; and (*c*) it can be assumed that the job proficiency of subordinates conforms to a normal, or bell-shaped, curve. Typically, a supervisor or manager is asked to distribute the names of subordinates into five categories, with a predetermined percentage of employees in each category. The usual percentages employed conform to a bell-shaped frequency distribution and are as follows:



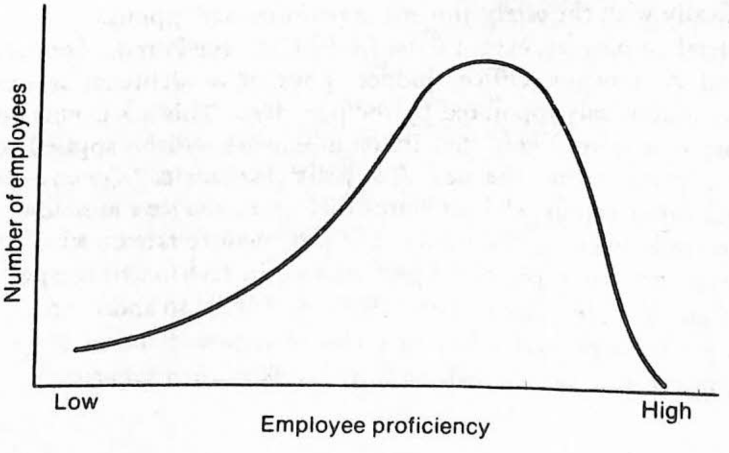
For instance, a supervisor with 30 subordinates would be forced to place the names of 3, 6, 12, 6, 3 employees in categories A, B, C, D, and E, respectively. It is best to avoid such category names as *poorest* and *worst,* since supervisors sometimes resent being forced to place employees in these slots. In one company, one of the authors used the following category names with no resistance from raters: below average, average, above average, excellent, and outstanding. Category names are relatively unimportant compared with acceptance of the method by raters and discriminability among ratees.

There are several problems encountered with this method that should be noted. First, quite often the assumption of normality (i.e., bell-shaped curve) is erroneous. This is true in those situations wherein employees have previously been screened by valid selection devices and/or given effective job training. In these cases, the distribution of employee proficiency would be "skewed" rather than bell-shaped (see Figure 13–6). Second, experience has shown that some supervisors resent being forced to pigeonhole their employees into a fixed distribution preset by someone else. As one supervisor said: "Most of my people belong in categories C, D, and E. I only have one or two who I think should be put in categories A and B. I'll do what you want, but I'm telling you honestly that it's not the way I really see them." Third, the rough classification of employees into only five or so categories can interfere with important administrative uses of performance evaluation. How can we give Smith a higher salary increase next year than Jones when they both received the same performance appraisal rating? We all know Smith is slightly better than Jones!

ADVANTAGES AND DISADVANTAGES OF EMPLOYEE COMPARISONS All employee comparison methods have one characteristic in common—they require the rater to evaluate workers relative to one another. These methods are thought of as having two principal advantages over other performance appraisal methods. First, employee comparisons seem to be natural to and easily understood by raters and therefore are often readily accepted by them. Second, unlike ratings and checklists, comparisons force raters to distinguish among subordinates. Thus, employee comparisons are useful for overcoming various rater tendencies, such as leniency and central tendency errors.

One disadvantage of these techniques is that they typically provide only information about serial arrangement. One cannot say that John is as much superior in proficiency to Bill as Bill is superior to Jim, even though the three ranks assigned to them (1, 2, and 3, respectively) are equally spaced. Without information about the magnitude of differences between individuals, it is virtually impossible for management to

FIGURE 13–6
Example of a skewed distribution of employee proficiency



compare individuals across groups. This is particularly disturbing when attempting to make salary and promotion decisions. Of course, the conversion to a common numerical scale mentioned earlier is a possible solution.

Evaluating employees relative to one another often brings about some unanticipated and troublesome problems. One first-line supervisor in a large-size manufacturing company described one problem this way:

> This performance appraisal technique forces me to give about half my people below-average evaluations. It's tough to sit down with 50 percent of your people and tell them they're doing substandard work when you know darn well that they're better than people on other crews. It's terribly discouraging for them. Their pride is hurt and they often won't give a good day's work for weeks.

Another supervisor told one of the authors this:

> I recently told one of my subordinates that I felt she was improving. When it came to rating her, however, I gave her the same evaluation I did six months before. When she asked me why, I explained that while her performance had improved, the performance of everyone else in our department improved about as much. It made me feel pretty foolish!

Here is what a middle-level manager of a large-size drug company told us:

> We have sales representatives whose salary increases are tied to their performance appraisals. Some of our minority group people have threatened to leave us for other companies at higher salaries. Between you and me, we find ourselves giving them higher ratings at the expense of others so as not to lose them.

Finally, Sections 430 of the 1978 Civil Service Reform Act deals specifically with the establishment of performance appraisal systems for all federal employees, except those in the CIA, the Foreign Service, the General Accounting Office, judges, physicians, dentists, nurses, as well as individuals appointed by the president. This act is noteworthy because it is quite likely that its requirements will be applied to the private sector within the next few years (Latham & Wexley, 1981). Among other things, the act states that an employee's appraisal must "not include any controls, such as a requirement to rate on a bell curve, that prevents fair appraisal of performance in relation to the performance standards" (*Federal Register,* 1979, p. 3448). In short, an individual must be appraised solely in terms of how well he or she is performing the job, rather than on a comparison with other individuals.

Critical incident

The term *critical incident* is used in several places in this chapter. It was mentioned previously as a job analysis technique used for constructing BOS. Now we will talk about critical incidents as a performance appraisal method per se. This method involves a supervisor recording all those incidents in each subordinate's behavior that result in either unusual success or unusual failure on some aspect of the job. All incidents observed by the supervisor are jotted down daily in a specially designed notebook that contains general categories under which the various behaviors can be recorded. Examples of such categories for managers are planning, decision making, delegating, report writing, interpersonal relations, and the like. For hourly production workers, examples of categories include safety, initiative, cooperation with co-workers, accuracy of work, and alertness to problems. Space is provided in the notebook under each category heading for recording both positive and negative incidents.

This method provides concrete information that can be discussed with the employee during periodic appraisal interviews. The manager no longer has to speak in terms of vague generalities ("Joe, you've been having trouble getting along with your work group") but can concentrate on discussing observable facts. The major problem with this procedure is that the manager's recordkeeping can lead to overly close supervision, causing subordinates to feel that "big brother is watching." It may also give subordinates the impression that everything they do will be jotted down in their superior's "little black book." However, this same criticism can be directed at BOS, BARS, and other rating methods. Since the method is not quantifiable, it makes promotion and salary decisions difficult.

Group appraisal

The group-appraisal procedure involves the immediate supervisor together with three or four other supervisors in the evaluation process. The additional supervisors are carefully chosen because they have some knowledge of the employee's work proficiency and can presumably contribute something to the evaluative discussions. The appraisal group has a coordinator whose main responsibility is keeping the evaluation as objective as possible. This is usually the manager who is directly superior to the group of supervisors. Sometimes it's a trained conference leader from the personnel department. In either case, the immediate supervisor has the major responsibility for rating the employee. The appraisal group aids the immediate supervisor by discussing the standards of performance for the job, the employee's current performance, possible reasons for this level of proficiency, and recommendations for improvement (Beach, 1975). One advantage of this method is the use of multiple judges who can cancel out any personal bias, leniency, strictness, central tendency, or halo error on the part of the immediate supervisor. Employee development is an important aspect of the procedure, since the group arrives at a comprehensive action plan for each appraisee. The biggest problems with this method are its cost and the fact that it is often difficult to find others beside the immediate supervisor who are familiar enough with an employee's performance to serve as group members.

Essay evaluation

In the essay evaluation procedure, the evaluator writes an essay describing each subordinate's strengths and weaknesses. In some organizations, the evaluator is required to group comments under specific headings, such as job performance, reasons for this performance, employee characteristics, and developmental needs (Beach, 1975). Other organizations provide no guidelines with regard to topics to be covered; each manager is free to write anything. The approach is time-consuming for the manager. It makes promotional and wage and salary decisions extremely difficult, since it is impossible to compare employees quantitatively. Frequently, in practice, managers write glowing reports about all their subordinates regardless of their proficiency for fear of putting negative comments down in writing. As one middle manager told us recently, "For all I know, he could end up being my boss in a couple of years." With this procedure, an employee's evaluation is highly dependent on the manager's skill and willingness to express himself or herself well in writing. The method is obviously vulnerable to personal biases, leniency error, halo, and so on. In short, it should be avoided wherever possible.

DIRECT MEASURES

All of the procedures discussed thus far require some sort of judgment on the part of the evaluator. Fortunately, there are certain types of jobs where subjective judgments are not necessary. Consider, for example, the assembly-line or press operator job. On these kinds of jobs an employee's proficiency can be assessed more directly by simply recording the number of units produced in a given time period, the number of unacceptable items produced, the number of accidents incurred during a certain span of time, and so on. The work performed on these jobs differs considerably from that of managers, personnel administrators, engineers, and chemists. On such nonproduction jobs, there is seldom any quantitative measure of output available, and we must use qualitative assessments of employee proficiency.

There are two main types of direct measures: those dealing with production (e.g., scrappage, units produced, dollars earned, quality of work, amount of rejects) and those involving personal information (e.g., absenteeism, training time needed to reach some acceptable level of performance, grievances, tardiness, tenure, injuries, dispensary visits). Productivity measures can usually be obtained easily from the accounting or quality control departments. It will ordinarily be necessary to obtain several different kinds of measures of productivity (i.e., quality and quantity of output), since any single measure will be deficient. These measures should be taken over long enough periods of time (e.g., 12 months) to ensure that random fluctuations are controlled. The correct time period for ensuring reliable measurement will of course depend on the particular job and measure used.

How does one compare the output of employees on two or more different production jobs? Worker A produces six passenger tires per seven-hour day, while Worker B produces 2½ industrial truck tires in the same span of time. It is difficult to determine who is the more proficient worker because the units of measurement on the two jobs are unequal. After all, it requires less time to build a small passenger tire than a massive truck tire. This problem can be dealt with by comparing each worker's output with some kind of standard or quota for his/her job. Suppose, for example the standard for passenger tires is eight per day, and the standard for truck tires is two. Worker A has a performance index of 75 (6/8 × 100), and worker B is superior with an index of 125 (2.5/2 × 100). The most difficult problem encountered with this solution is the determination of an equitable standard for each job. No one solution is problem-free. The interested reader is referred to Ghiselli and Brown (1955) for a discussion of the various ways to set production standards.

Although senior-level management, stockholders, and consumers are generally concerned with these kinds of direct cost-related measures, they are often inadequate indicators by themselves of an employee's job effectiveness for several reasons (Latham & Wexley, 1981). First, direct measures are often deficient in that they often omit important factors for which an employee should be held accountable (e.g., cooperating with co-workers). This deficiency is a major criticism of management by objectives programs (see Chapter 12) in which performance goals are set and appraised in terms of cost-related targets. Second, direct measures are difficult to obtain on employees in many jobs. Even when such measures can be obtained, they are usually applicable only for the work group as a whole, because no one worker has much control over the output measured. Third, direct measures are frequently influenced by situational factors (budgetary support, quality of tools and equipment, availability of raw materials, etc.) over which an individual may have little or no control. Lastly, the sole use of these kinds of measures can encourage a results-at-all-costs mentality that can run counter to both corporate ethics policies, legal requirements, and the long-term objectives of the organization.

Personal measures are considered primarily with production jobs, but they pertain to other jobs as well. Although these personal items are not as job related as productivity measures, they can tell us important things about an individual employee's proficiency. Consider for a moment the costs for an organization in lost productivity when an employee is excessively tardy and absent, takes considerable time to learn the job, quits soon after training, or files frequent grievances.

PROFICIENCY TESTING

Another approach to measuring the performance of job incumbents is to use various types of proficiency tests. One variant of this approach consists of using work samples or simulations. Here, using either the actual work environment or a simulation of it, the employee is asked to perform exactly the same work behaviors as involved in the job. Examples of this would include typing tests, simulated telephone calls to operators, repairing malfunctioning gear reducers, and tuning automobile engines. The Assessment Center (discussed in Chapter 14) illustrates the use of simulation devices for evaluating the proficiency of managerial personnel. A second variant of this approach involves constructing written tests to assess an employee's current level of job knowledge and comprehension. When such measures are used, it must be assumed that the knowledge being tested is a necessary condition for actual job performance. As an example, knowledge of electrical theory may have no relationship to the job proficiency of maintenance electricians whose major responsibility is wiring machinery and equipment. On the other hand, assessing the electrician's knowledge and understanding of AC and DC electrical currents would be quite important.

It is essential for proficiency tests to be representative of the everyday work activities of the employee. If not, the measurement will be deficient. In addition, one must always remember that some individuals become nervous when tested and consequently do poorly. For these particular employees, proficiency tests will not provide an accurate evaluation.

IMPLEMENTING APPRAISAL PROGRAMS

Now that we have looked at a number of appraisal methods, let us discuss several important issues involved in implementing performance appraisal programs. Specifically, we will consider the following six questions:

1. Who should do the appraising?
2. What should be evaluated?
3. When should appraisals take place?
4. Why is there union resistance to appraisals?
5. Should evaluators be trained?
6. How should appraisals be fed back to employees?

Who should appraise?

The prevailing practice in most organizations is for an employee to be appraised by an immediate supervisor or manager. It is assumed that the superior is in the best position to observe the subordinate's behavior and to evaluate this behavior in light of organizational goals (Glueck, 1982). In recent years, some organizations have come to realize that other parties besides an employee's immediate superior can provide appraisals. These parties include: (1) organizational peers of the employee, (2) subordinates of the employee, (3) the employee himself or herself, (4) persons outside the employee's work unit, and (5) customers.

What can be said about each of these approaches? Peer evaluations have received significant support from research conducted in the military and in industry (Kane & Lawler, 1978). It appears that appraisals by an employee's work associates yield valuable information about proficiency provided that the following conditions are met: (1) there is a high level of interpersonal trust among peers, (2) a noncompetitive reward system exists, (3) there is high oganizational commitment, and (4) information about an employee's proficiency is directly available to peers (Cummings & Schwab, 1973). It is unfortunate that peer ratings are not used widely today in business and industry. This is probably due to the fact that few personnel administrators are aware of its potential.

Appraisals by a manager's subordinates is an excellent development approach. It provides managers with an understanding of how their people see them and the behaviors they must change to improve. On the other hand, subordinate appraisals should rarely be used for promotional, salary, and other administrative decisions. Many managers consider subordinate appraisals to be inappropriate and an undermining of their legitimate position power. It is interesting to note that recent research has shown that subordinates give their immediate managers more favorable appraisals the more "congruently" they see their managers (Wexley & Pulakos, 1983). That is, the more a subordinate sees his or her manager in a way similar to how the manager sees himself/herself, the higher the subordinate rates the manager.

Employee self-appraisals are typically inflated compared with appraisals made by superiors. Consequently, there is every reason to believe that they are subject to self-interests, which seriously lower their validity. On the positive side, they are effective tools for stimulating self-development. Employees are encouraged to think about their own strengths and weaknesses and to establish goals for future improvement.

Evaluations by outsiders (i.e., external consultants or specialists from the personnel department) are especially useful when promotional decisions need to be made. Often, those in the work unit have vested interests in the evaluation and find it impossible to be totally objective. The approach is also useful when managers need outside help in making their appraisals.

Evaluations by customers and clients are particularly important in service organizations, such as restaurants, hotels, banks, hospitals, and universities. If these types of organizations are not adequately serving the needs of their constituencies, their continued survival will be threatened.

What should be evaluated?

The proficiency of any employee can be looked at in three different ways. It can be expressed in terms of the behaviors that the employee exhibits in performing the job. It can be looked at in terms of the tangible results or outcomes that the employee achieves. It can also involve ratings on such factors as drive, loyalty, initiative, leadership potential, and moral courage.

It has been shown that there is little utility in making trait ratings. They are of no value in helping an employee to do a better job. For instance, how does one improve "moral courage?" Moreover, those traits are usually defined poorly, which seriously reduces interrater reliability and encourages personal biases in evaluations. However, trait appraisals can be quite useful when we wish to predict the future job performance of an individual being considered for a promotion.

The research evidence suggests that evaluating *both* behavior and results simultaneously is an organization's best course of action, when it is technically feasible to do so (Porter, Lawler, & Hackman, 1975). This motivates the employee not only to engage in effective behaviors, but also to achieve desired outcomes. For example, salespeople should be evaluated not only in terms of their sales volume, but their persistance on tough accounts, their use of new sales techniques, and their aid to customers with equipment and displays However, for jobs where objective measures are unavailable or seriously contaminated, only behavioral measures should be used.

When should appraisals take place?

Most organizations schedule the appraisal of their employees at fixed intervals. For example, many companies designate one month each year during which time evaluations of all their employees are to take place. Other companies appraise each employee on the yearly anniversary of the month that the individual began work. This type of fixed-interval schedule is difficult to defend from a performance-improvement or psychological point of view unless it is supplemented with coaching whenever there are significant variations in an employee's behavior or performance. In this way, the formal feedback the employee receives once or twice a year is augmented with feedback that is more frequent and more closely linked with daily, weekly, and monthly performance variations.

Why is there union resistance?

As you might have gathered by now, unions have generally been opposed to the implementation of formal performance appraisal programs in industry. The reason for this is their understandable desire to safeguard the job security of their union members (Schultz, 1978). It may be based in part on their doubts about the reliability and validity of most performance appraisal methods. For this reason, unions have traditionally favored the use of seniority as the prime factor in determining promotions, transfers, layoffs, pay increases, and so on. This is of course opposed to the underlying assumption of all appraisal systems—that an employee should be rewarded contingent on his or her merit.

Should evaluators be trained?

Performance appraisals are almost inevitably contaminated by such well-known judgmental errors as halo and leniency. It would seem logical that to solve the problem of human errors, the evaluator must be trained. In a recent study, it was shown that managers in a large corporation could be successfully trained to eliminate several rating errors that occur in performance appraisal and selection interviews, namely, halo error, similarity effect (the tendency on the part of a rater to judge more favorably those perceived as similar to self), first impressions (the tendency to evaluate someone on the basis of a judgment made primarily after an initial meeting), and contrast effect (the tendency to evaluate subordinates in comparison with other subordinates rather than against a predetermined anchor or standard). It should be noted that first impressions and contrast effect are two new biases not discussed earlier. The training involved a 9½-hour workshop in which participants saw videotapes of hypothetical job candidates being appraised by a manager. The trainees gave a rating as to how they thought the manager in the videotape evaluated the candidate and how they themselves would rate the candidate. In this way, the trainees had an opportunity to observe videotaped managers making human errors, to actively participate in discovering the degree to which they themselves were prone to making such errors, to receive feedback as to their own ratings, and to practice job-related tasks to reduce any errors they were committing (Latham, Wexley, & Pursell, 1975). Research results suggest the tenacity of judgmental errors despite attempts to reduce them by means of warning or lecturing raters about them. It appears that these errors can only be reduced by a fairly intensive training program that takes into account some of the basic principles of learning (see Chapter 16) (Wexley, Sanders, & Yukl, 1973).

Clearly, more research is urgently needed on rater training. For instance, as we mentioned previously, some recent research suggests that reductions in judgmental errors such as halo and leniency do not necessarily mean that the accuracy of the ratings is improved (Ivancevich, 1979). Perhaps, more types of errors need to be covered during training. Maybe less emphasis should be put on perceptual errors and more should be put on training raters how to record critical incidents, understand the rating forms, comprehend the purposes of appraisal within their organization, and motivate them to be more accurate.

HOW SHOULD APPRAISALS BE FED BACK TO EMPLOYEES?

In some organizations, employees are never told how they have been appraised by their managers. Consequently, many of them never really know how they stand with their bosses. As one engineer commented, "The only time I know that my manager thinks I'm doing a good job is when my wife, who does our banking, tells me that I've gotten a raise." Fortunately, most organizations today conduct what is referred to variously as performance appraisal interviews, performance reviews, work planning and review, performance audits, and feedback interviews—all of which generally have the same meaning. A survey conducted by the Bureau of National Affairs revealed that in 91 percent of the 139 organizations studied, appraisal results were fed back to employees (Feild & Holley, 1975). Typically, this interview occurs between an employee and his or her manager either once or twice a year.

It is important to distinguish between the performance appraisal interview and the day-to-day coaching that occurs informally between a manager and an employee. Unlike performance appraisal interviews, which are formal and scheduled, coaching occurs on an informal and frequent basis. When coaching an employee, the manager explains why things are done the way they are, suggests ways the employee can improve, and shows approval and disapproval regarding the employee's day-to-day job performance. What an employee needs to start doing, continue doing, and stop doing must be communicated on an ongoing basis if we hope to increase productivity through performance appraisals (Latham & Wexley, 1981). Moreover, if the manager provides coaching on an ongoing basis, the performance appraisal interview becomes a review of issues that have already been discussed by the manager and employee in the past. Employees will be less defensive in response to negative feedback and more open in discussing their performance-related problems (Beer, 1981).

The performance appraisal interview requires more skill on the part of a manager than any of the other kinds of interviews (e.g., selection, disciplinary, exit) he or she is called upon to perform. The difficulties managers experience in conducting effective performance appraisal interviews can be traced to the healthiness of their interpersonal relationship with their employees, their skills in handling a feedback session, and the quality of the performance appraisal system being used to assess employees' job performance (Beer, 1981). In addition, managers and employees often want the performance appraisal interview to serve conflicting objectives. Employees desire to maintain a positive image with their bosses so as to maximize their pay increases, promotions, and favorable work assignments. Managers, on the other hand, want their employees to be receptive to negative feedback about themselves, and to be trusting enough to supply unfavorable information about themselves during the interview. The conflict is over the exchange of information (Beer, 1981; Porter, Lawler, & Hackman, 1975). Given these kinds of difficulties, it is not surprising that many managers are reluctant to conduct performance appraisal interviews. In fact, here are some of their typical comments:

> "I'll do anything to avoid giving my people their yearly performance feedback."
>
> "I hated to criticize Jones and then have to argue about it with him."
>
> "These rating forms are ridiculous."
>
> "I'm just not comfortable trying to be a judge and a helper at the same time."
>
> "I wanted Wilson to talk about her weaknesses, but all she wanted to know about was her pay raise."

Despite these potential difficulties, the performance appraisal interview can be a valuable employee development tool for managers if conducted properly. Wexley (1979, 1982) and other reviewers, such as Burke, Weitzel, and Weir (1978) have summarized some of the major research findings on performance appraisal feedback that suggest six *general* characteristics of effective interviews:

PARTICIPATION If the interview's objective is to motivate employees to change their behavior or improve their performance, the session must be one in which employees get an opportunity to participate actively. Studies have clearly shown that the more the employee participates in the appraisal, the more the employee is satisfied with the appraisal process and the manager who conducted it, and the more likely performance improvement goals will be accepted and met (Latham and Yukl, 1975; Nemeroff and Wexley, 1979; Wexley, Singh, and Yukl, 1973). What do we mean by *participation?* The term refers to the employee's feelings of ownership (their thoughts are welcomed and those topics they feel require attention are addressed) and contribution (they can make suggestions that they believe have impact on their boss) during the interview (Greller, 1978). Participation is not merely how much the employee talks. Apparently, what one talks about is more important than how much time one spends talking. Essentially, the manager's role should be to collect data from the employee, such as self-assessments, performance problems being encountered, and suggestions for improvements, and to seriously consider them.

SUPPORT Employee acceptance of the appraisal and satisfaction with the manager increases to the extent that the manager is helpful and supportive (Kay, Meyer, & French, 1965; Nemeroff & Wexley, 1979). In general, the more the manager uses positive motivational techniques, the more open and trusting the employee will be in supplying valid information that the manager needs to know. Examples of such positive techniques are praising the employee for what he or she has done well, ending the interview on a positive note, trying to be friendly, and treating the employee as an equal and with respect.

GOAL-SETTING Both laboratory and field research has repeatedly shown that the setting of specific goals dramatically improves employee performance (see Chapter 1). In fact, specific goals can result in up to twice as much improvement in employee performance as does a discussion of general goals (Latham & Yukl, 1975). Telling employees to do their best or try harder or increase sales volume has little, if any, impact on their productivity. However, telling them to "increase their sales volume by 5 percent by June 1" or to "stop gossiping about the personal lives of prospective clients" is much better. Goals can be either results-oriented (e.g., increase sales volume) or behavior-oriented (e.g., stop gossiping). Although both kinds of goals are useful, behavioral goals are much more specific and therefore helpful in letting an employee know exactly what he or she has to do differently to obtain certain results.

DISCUSSING PROBLEMS The performance appraisal interview should focus on discussing and solving problems that are interfering with the employee's current job performance (Maier, 1958). These problems might be such things as inadequate raw materials, outmoded equipment, poor maintenance, and inadequate training. It could even involve certain poor supervisory practices on the part of managers. In fact, managers should be encouraged to ask their employees, "Is there anything I can do differently to help solve these problems?"

NUMBER OF CRITICISMS Apparently, too much criticism by managers during the interview results in defensive reactions by employees, which in turn lead to little performance improvement on their part (Kay, Meyer, & French, 1965). Their defensiveness can be explained by their desire to look good in their bosses' eyes. Defensiveness can take various forms, such as blaming others for one's inadequacies, minimizing the importance of the appraisal process, demeaning the manager and/or the appraisal forms, and insincerely agreeing to change one's ways (Beer, 1981). Criticism threatens employees' self-esteem. A manager can minimize threats to employees' self-esteem by providing specific, behaviorally oriented negative feedback. The more the manager focuses on the personality and mannerisms of employees (e.g., "Joe, I've rated you below average in dependability," and "Mary, you're terribly awkward with customers") rather than on observed behaviors ("Joe, you're often late for meetings," and "Mary, you rarely smile when talking with customers), the less employees will be motivated to improve their performance (Cascio, 1982).

SPLIT THE MANAGER'S ROLES The performance appraisal interview has two main objectives from the manager's viewpoint: administrative (evaluative) and individual employee development. Although these two objectives are important, both cannot usually be accomplished during the same session, since the manager is being asked to play the conflicting roles of judge and helper (McGregor, 1957). To alleviate this situation, it is best to have two separate sessions—one that focuses on evaluation and administrative ends and another that focuses on employee development. These sessions should be separated in time as much as possible (Kay, Meyer, & French, 1965).

SUMMARY

Performance appraisal is an essential part of the control process in organizations. Performance data are used in making administrative decisions and for providing developmental feedback to employees. The usefulness of a performance measure is dependent on its validity, reliability, and practicality.

Performance measures can be classified into one of three general categories: subjective procedures, direct measures, and proficiency testing. Subjective procedures include rating scales, checklists, employee comparisons, critical incident technique, group appraisal, field review, and essay evaluation. These procedures are susceptible to various kinds of human errors, including leniency, central tendency, halo effect, and personal biases. Some of the subjective procedures are more prone to these human errors than are other subjective procedures. The reliability and validity of subjective procedures also depend on the evaluator's skill and specific knowledge about the employees being judged. Behaviorally anchored rating scales and behavioral observation scales are two rating methods that are acceptable to raters and, at the same time, minimize human errors.

Direct measures of employee performance include quantitative records of productiviy and output quality and personal measures, such as absenteeism, tardiness, and injuries. These measures can be used as a basis for establishing performance standards or for setting performance goals.

The third category of performance measure is proficiency testing. Employee proficiency is evaluated by means of work samples or simulations involving the same behavior and skills required on the job. Although not a direct measure of performance, proficiency tests can be used to determine whether or not an employee is capable of performing at an acceptable level.

Employee performance can be judged by the immediate supervisor, by subordinates, by peers, by the employee, or by outside specialists. The judgments can be expressed in terms of behavior exhibited, tangible outcomes of the behavior, or employee traits and skills. Performance can be improved by training evaluators, developing accurate measuring procedures, and scheduling evaluations at appropriate intervals. The performance appraisal interview between the manager and the employee will be most effective when it involves participation, support, goal setting, discussion of problems, few criticisms, and a split session.

REVIEW AND DISCUSSION QUESTIONS

1. **Define and explain each of the following key terms:** *measurement deficiency, measurement contamination, halo effect, sex-role stereotype, paired comparisons, critical incident, forced distribution, alternation ranking, performance appraisal interview, similar-to-me effect.*

2. What are the relative advantages and disadvantages of using employee comparison methods?
3. Since all subjective procedures depend upon human judgment to some degree, they are likely to be susceptible to certain kinds of distortions. What are some of the potential sources of bias and errors affecting these evaluations?
4. What are some of the wide variety of uses of employee proficiency measures in organizational settings?
5. Assume that you have just been asked by your college or university to measure the teaching effectiveness of individual faculty members. You have no available direct measures and therefore must rely on subjective procedures. You want the measures to be as valid, reliable, and practical as possible. What method(s) would you choose and why?
6. Think of a job with which you have some familiarity. Outline the procedures that you would follow in developing behaviorally anchored rating scales for it.
7. Critically evaluate the current state of knowledge in the area of measuring employee proficiency. Do you think that we know a lot? In what ways do we still have to learn more?
8. Suppose you were given the assignment by a company of installing a performance appraisal program for all middle- and upper-level managerial jobs. What method would you use, and why would you prefer it?
9. What are the strengths and limitations of using behavioral observation scales?
10. Compare the advantages of using behavioral observation scales and behaviorally anchored rating scales.
11. Describe the six general characteristics of an effective performance appraisal interview.
12. Discuss the various sources from whom appraisals can be obtained (e.g., superiors and subordinates). Which sources are best to use?
13. Should employees be appraised in terms of their traits, behaviors and/or results? Why? Does your answer depend upon the type of job the employee has?
14. What type of training should raters be given?

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14

Personnel selection

The most traditional function performed by psychologists in industry has been the selection and placement of personnel. Since the early 1900s, industrial/organizational psychologists and personnel administrators have been actively involved in developing better ways of putting the right person in the right job at the right time. This challenging task is based on the simple fact that individuals differ. If all individuals had the same skills, knowledge, motivation, and abilities, personnel selection and placement would be unnecessary, since everyone would be identical in terms of their job proficiency. This is obviously not the case.

One of the critical aspects of any organization's effectiveness is the caliber of its personnel. Thus, it is important for every company to develop efficient ways of hiring better workers to replace those who have been terminated, promoted, transferred, or retired. In this chapter we will discuss some of the methods used for making valid selection and placement decisions.

RECRUITMENT

The method of recruitment that an organization uses will directly affect the efficiency of its selection and placement program in at least three ways. First, the recruitment method will determine the number of qualified applicants applying for a particular position. After all, the more candidates there are for each job to be filled, the more utility the selection instruments will possess. Second, it will influence how well the organization meets its obligation to hire minority group members and women. This will usually entail advertising in minority newspapers, sending recruiters to minority colleges and high schools, and cooperating with such agencies as the Urban League that specialize in working with the minority community (Strauss & Sayles, 1980). It will also involve actively searching for qualified women when filling positions not traditionally held by women.

Third, it can sometimes affect the subsequent turnover rates of employees. Several studies have shown that when recruiters give applicants realistic expectations about a particular job by pointing out *both* the positive and negative aspects of it, lower turnover rates result (Porter, Lawler, & Hackman, 1975). This is particularly true when the job is fairly complex in terms of the physical and mental demands placed on the incumbents, as in the case of managerial and sales positions (Reilly, Brown, Blood, & Malatesta, 1981). Often recruiters give applicants unrealistic expectations regarding the company and their future jobs, thereby resulting in frustration, dissatisfaction, and early termination. One possible solution to this problem used by several companies is a work sample preview, which gives the prospective employee a realistic picture of what will be expected of him or her (Wanous, 1980). This typically involves providing films, videotapes, printed booklets, or job visits to realistically depict training and work.

Among the many *external* sources that organizations use to actively recruit new employees are the following: (1) advertising in newspapers, radio, professional magazines, and local television; (2) visits to college and high school campuses; (3) government and private employment agencies; (4) word-of-mouth recruiting by current employees, who are given incentives for doing this; (5) labor unions; and (6) professional organizations and societies. Sometimes organizations recruit *internally* by using computerized data banks that store information about the skills, knowledge, and abilities of each employee. When a new position becomes available, the computer can survey the entire work force in a matter of minutes (Chruden & Sherman, 1980). Quit rates (number of hired persons who subsequently quit) by recruitment sources has been investigated (Decker & Cornelius, 1979; Gannon, 1971). These studies show that if an organization limits its recruiting to its best sources, it can reduce its quit rates—thereby resulting in substantial cost savings. In general, employee referrals have been found to be among the best sources of applicants.

METHODS OF OBTAINING INFORMATION ABOUT JOB CANDIDATES

There are a large number of methods organizations use to collect information about job candidates before deciding whom to hire. These methods differ greatly in terms of their popularity and their usefulness.

In this section, we will discuss testing, biographical data, interviewing, references and letters of recommendation, peer ratings and supervisory judgments, and assessment centers. We will pay particular attention to the validity or predictive efficiency of each of these selection approaches.

Personnel testing

CHARACTERISTICS OF A GOOD TEST There are certain characteristics that all well-constructed psychological tests have in common, namely, standardization, norms, reliability, and validity. It is these characteristics that should be looked for in any published or tailor-made test. These factors are what set psychological tests apart from the "tests" often seen in popular magazines ("How good is your marriage?"). It should be noted at the beginning that few, if any, tests meet all of the standards set forth below. Nevertheless, they are ideals that should be striven for in all types of selection devices.

Standardization Standardization refers to the consistency or uniformity of procedures for administering and scoring a test. If we expect to compare the scores obtained by several job applicants, then the testing conditions must obviously be identical for all of them. Otherwise, any change in the testing procedures may put certain applicants at an unfair advantage. In order to achieve this uniformity of testing conditions, the test developer must specify in the test manual the exact procedures to be followed regarding such things as time limits, oral instructions, ways of handling specific questions from examinees, test materials needed by examinees, physical testing conditions (e.g., seating facilities, illumination), and scoring procedures.

Norms If you were informed that a job applicant got 60 problems correct on a 100-item mechanical reasoning test, this score would convey little information about the applicant's relative standing in this ability. In order to interpret this score, it must be compared with the scores obtained by a sample of similar individuals. This is accomplished by means of test norms. Essentially, norms are a distribution of test scores obtained from a large sample of persons representative of the population of applicants being considered for the job. The distribution of scores of this reference group (sometimes called a norm group) serves as a yardstick against which a job applicant's score can be compared. Does our applicant's score coincide with the average score of the norm group? Is the applicant considerably above or below average? An applicant who falls at the 90th percetile has a score exceeding the scores obtained by 90 percent of those in the norm group. An example of test norms is presented in Table 14–1.

A comprehensive guide for the evaluation of psychological tests has

TABLE 14–1 Female norms from the Edwards Personal Preference Schedule

WOMEN
N = 4932

Score	*ach*	*def*	*ord*	*exh*	*aut*	*aff*	*int*	*suc*	*dom*	*aba*	*nur*	*chg*	*end*	*het*	*agg*	Score
28																28
27											99					27
26						99				99	98	99	99	99		26
25			99			98	99			97	96	98	98	98		25
24			98			96	98	99		95	91	97	96	98		24
23	99	99	96			92	97	98	99	92	87	94	94	97		23
22	98	98	94		99	88	95	98	98	87	79	91	90	96		22
21	96	97	90	99	98	81	93	96	98	82	72	87	85	95	99	21
20	95	94	85	98	97	73	89	94	97	75	64	81	79	94	98	20
19	92	89	80	97	96	63	84	92	95	68	56	76	72	93	97	19
18	88	83	73	95	93	54	77	88	94	59	47	68	64	91	96	18
17	83	75	65	93	89	44	70	84	91	51	38	60	56	89	93	17
16	77	66	56	89	85	35	62	78	89	43	31	53	47	87	91	16
15	70	56	46	84	79	27	52	72	85	36	24	45	39	84	87	15
14	60	46	38	78	72	20	42	64	80	29	18	37	32	81	83	14
13	50	37	30	70	64	15	32	55	76	23	13	30	25	78	78	13
12	40	27	24	61	54	10	25	46	71	18	9	23	20	75	71	12
11	30	19	19	51	45	7	18	38	64	14	6	18	15	71	64	11
10	21	14	14	42	36	5	12	30	56	11	4	13	11	66	55	10
9	15	9	9	32	28	3	8	24	49	7	3	9	7	63	46	9
8	9	5	6	23	20	2	5	17	40	5	2	6	5	58	38	8
7	5	3	4	15	13	1	3	12	32	4	1	3	3	53	29	7
6	3	2	3	9	8		1	8	22	2		2	2	48	20	6
5	1	1	1	5	4			5	15	1		1	1	42	14	5
4				2	2			2	9					37	9	4
3				1				1	4					30	4	3
2									1					24	2	2
1														17		1
0														10		0

Note: The abbreviations in the table stand for the following psychological needs: achievement, deference, order, exhibition, autonomy, affiliation, intraception, succorance, dominance, abasement, nurturance, change, endurance, heterosexuality, and aggression.

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been published by the American Psychological Association. It is called the *Standards for Educational and Psychological Tests* (1974) and it is quite useful for any personnel administrator involved in testing. These standards are concerned with the information about validity, reliability, norms, and other test characteristics that should be reported in test manuals. Listed below are some of the more important rules adapted from the *Standards* regarding norms:

1. Except where the primary use of a test is to compare individuals with their own local group, norms should be published in the test manual at the time of release of the test for operational use. (Authors' comment: Too often, tests are published with no norms, only the promise that they will be available sometime in the near future).
2. Norms presented in the test manual should refer to defined and clearly described populations. These populations should be the groups with whom users of the test will ordinarily wish to compare the persons tested.
3. The description of the norm group should be sufficiently complete in the test manual that the user can judge whether his or her sample data fall within the population data represented by the norm group. The description should include number of cases, classified by such variables as age, sex, and educational status.
4. The number of cases on which the norms are based should be reported in the test manual. If the sample on which norms are based is small or otherwise undependable, the user should be cautioned explicitly in the test manual regarding the possible magnitude of errors arising in the interpretation of scores.
5. The test manual should report whether scores vary for groups differing on age, sex, amount of training, and other equally important variables.

Reliability As we discussed in the previous chapter on performance appraisal, one of the most important characteristics of any measuring instrument is that it gives consistent results on repeated trials. A bathroom scale would be worthless if every time you weighed yourself it gave different results. Similarly, a psychological test would not be useful if the scores obtained by examinees were not consistent or stable on successive testings. When making personnel decisions, we must be fairly certain that when applicant A gets a higher score on a selection test than applicant B, the difference between these two individuals would be the same if they took the test again at some other time. If test scores are unstable, the value of the test for selecting the better applicant would be diminished.

No matter how ideal the testing conditions, no test is perfectly reliable. All tests are affected, to some degree, by random changes in the examinee (e.g., fatigue, access to memory, emotional strain) and the testing conditions (e.g., unexpected noises, sudden changes in the weather). Thus, before a test can be used for selection purposes, its reliability should be shown to be adequate.

There are several straightforward methods for determining reliability, three of which are briefly described below.

The *test-retest method* involves administering the same test on two different occasions to the same group of individuals and correlating the two distributions of scores. The closer the correlation is to + 1.00, the more the examinees have maintained their relative position from the first to the second testing. Of course, it is important that the test manual report the time interval between the two test administrations, since reliability will normally decrease as the interval is lengthened. With many psychological tests, this method is inappropriate. Since the examinees take the same test twice, the correlation is often distorted by memory and practice effects. Only tests not appreciably affected by repetition (e.g., certain perceptual speed tests and motor tests) are amenable to this method (Anastasi, 1982).

The *equivalent-forms method* is exactly the same as the test-retest approach, except that two equivalent forms of the same test are used rather than a readministration of the same test. The major advantage of this method is that it reduces the problems of memory and learning encountered with the test-retest method. The obvious disadvantage of this method is the expense involved in constructing two equivalent forms of a test—forms alike in all respects except for their specific items. Like the test-retest method, this type of reliability should always be accompanied by a statement of the time interval between testings.

The concept of reliability takes on a slightly different meaning when talking about the *split-halves method.* Here we are concerned mainly with the *internal consistency* of the test rather than with its temporal consistency. To find the split-half reliability, one administers the test once, divides the test by assigning the even-numbered items to one half and the odd-numbered items to the other, scores the halves separately for each examinee, correlates the scores earned by the examinees on each half, and boosts the correlation by means of the Spearman-Brown formula. This procedure can be found in any basic textbook on testing (e.g., Anastasi, 1982). It is quite popular because it requires only one administration of the test.

Regardless of the method used, reliability estimates should fall in the +.80s and +.90s to be considered satisfactory for selection purposes. Since the magnitude of the correlation obtained is independent upon the particular method used, test developers should report the results of using several different methods rather than just one.

Validity In a broad sense, validity refers to the degree to which a test actually measures what it claims to measure. The specific methods employed for determining a test's validity are numerous. Since our interests here relate primarily to personnel selection and placement, two main types of validity are especially important, namely, criterion-related validity and content validity.

Criterion-related validity is determined by correlating the scores obtained by individuals on a selection test with some available criterion (see Chapter 13) of their job performance. Thus, sales aptitude test scores might be correlated with sales figures available for a three-year period. Two kinds of criterion-related validity should be distinguished: predictive validity (also known as the followup method) and concurrent validity (also called the present-employee method). Of the two, predictive validity is the more convincing validity for selection purposes, since it comes closer to assessing the actual power of the selection instrument for predicting subsequent job performance. In order to assess predictive validity, a test is administered to job applicants at the time of hire and correlated with criterion measures obtained at some later time (e.g., at the end of 12 months). Concurrent validity, on the other hand, is determined by administering the test to employees presently on the job and correlating their scores with currently available measures of their job proficiency. The exact procedures involved in determining predictive and concurrent validity will be discussed in greater detail in the next chapter together with the pros and cons of each method. For now, let us look at a few important rules regarding criterion-related validity adapted from the *Standards for Educational and Psychological Tests* (1974):

1. The manual should report the validity of the test for each criterion about which a recommendation is made.
2. For any type of prediction the manual should report test-criterion correlations for a variety of institutions or situations.
3. The time elapsing between the test administration and the collection of criterion data should be reported in the manual.
4. If a test is recommended for long-term prediction, but comparisons with concurrent criteria only are presented, the manual should emphasize that the validity of predictions is undetermined.
5. The criterion score should be determined independently of test scores. The manual should describe any precautions taken to avoid contamination of the criterion or should warn the reader of possible contamination.

6. The validity sample should be described in the manual in terms of those variables known to be related to the quality tested, such as age, sex, socioeconomic status, and level of education.
7. The validity of a test should be determined on subjects who are at the age or in the same educational or vocational situation as the persons for whom the test is recommended in practice.
8. When information other than the test scores is known to have an appreciable degree of criterion-related validity and is ordinarily available to the prospective test user, the manual should report the validity of the other information and the resulting multiple correlation when the new test information is combined with it.

Content validity also deserves mention because it is often used for validating achievement (or trade) tests. It involves a systematic review of the test content to determine whether it adequately measures the skills, knowledge, and abilities required by the job. The determination of this kind of validity is made on the basis of the judgment of "experts" (e.g., supervisors and incumbents) with regard to the appropriateness of the test content in relation to the job analysis information. For instance, each member of a Content Evaluation Panel (composed of an equal number of supervisors and incumbents) can be given a set of test questions and asked to independently judge whether the skill, knowledge, or ability measured by each item is (1) essential, (2) useful but not essential, or (3) unnecessary to performance on the job (Lawshe, 1975; Cascio, 1982). From a legal standpoint, it would seem wise to make certain that an organization's selection tests possess both content as well as criterion-related validity when technically feasible.

TYPES OF TESTS Although all selection devices are "tests" in a legal sense, most people typically use the word *test* to refer to psychological tests. At last count, there were more than 1,200 published psychological tests on the market (which are critiqued in the *Mental Measurements Yearbooks*) (Buros, 1978). There are several ways we can classify this numerous assortment of tests. They can be discussed in terms of the way they are scored (objectively or subjectively), administered (individually or to large groups of people at one time), or even the method used by the examinee to record answers (written, oral, or equipment manipulation). The most useful classification scheme for our purposes is perhaps to categorize these tests in terms of the characteristics they purport to measure. Table 14–2 includes seven main categories of tests together with a few examples of commercially available instruments in each grouping.

Intelligence tests Short (12 to 30 minutes) and easily administered group intelligence tests have been especially developed for gross screening of lower- and middle-level industrial personnel. The tests may have fairly high validity for certain jobs and no validity at all for others,

TABLE 14–2
Examples of some commercially available employment tests

Name of Test	*Test Publisher*
Intelligence	
Adaptability Test	Science Research Associates
Wechsler Adult Intelligence Scale (WAIS)	The Psychological Corporation
Wesman Personnel Classification Test	The Psychological Corporation
Wonderlic Personnel Test	E.F. Wonderlic & Associates
Psychomotor	
Purdue Pegboard	Science Research Associates
Crawford Small Parts Dexterity Test	The Psychological Corporation
Hand-Tool Dexterity Test	The Psychological Corporation
Minnesota Rate of Manipulation Test	Educational Test Bureau
Personality	
Guilford-Zimmerman Temperament Survey	Sheridan Psychological Services
California Psychological Inventory	Consulting Psychologists Press
Sixteen Personality Factor Questionnaire	Institute for Personality and Ability Testing
Edwards Personal Preference Schedule	The Psychological Corporation
Personality Research Form	Research Psychologists Press
Jackson Personality Inventory	Research Psychologists Press
Interest	
Kuder Preference Record Vocational Form CP	Science Research Associates
Strong-Campbell Interest Inventory	Stanford University Press
Holland Vocational Preference Inventory	Consulting Psychologists Press
Mechanical Aptitude	
SRA Mechanical Aptitudes	Science Research Associates
Bennett Mechanical Comprehension Test	The Psychological Corporation
Revised Minnesota Paper Form Board	The Psychological Corporation
MacQuarrie Test for Mechanical Ability	California Test Bureau
Clerical Aptitude	
Typing Test for Business	The Psychological Corporation
Short Tests of Clerical Ability	Science Research Associates
General Clerical Test	The Psychological Corporation
Minnesota Clerical Test	The Psychological Corporation
Projective	
Thematic Apperception Tests	Harvard University Press
Tomkins-Horn Picture Arrangement Test	Springer Publishing Company
Miner Sentence Completion Scale	Springer Publishing Company

depending upon the amount of verbal and numerical ability required to learn or perform the particular job. Unfortunately, there are those who have the erroneous impression that these tests can predict success in almost all jobs. The fact is that this kind of test has been shown to be a better predictor of success in training than for job proficiency (Ghiselli, 1973). This is probably true because many business and industrial training programs stress the same intellectual abilities as required in formal school situations. There is evidence that certain of these tests may sometimes inadvertently discriminate against minority group applicants. This possibility should be examined before any test is used for selection purposes.

Unlike the short group intelligence tests, the Wechsler Adult Intelligence Scale (WAIS) is a lengthy (over an hour) individualized test administered by a trained psychologist. Because of its administration costs, it is used primarily for selection of high-level managers.

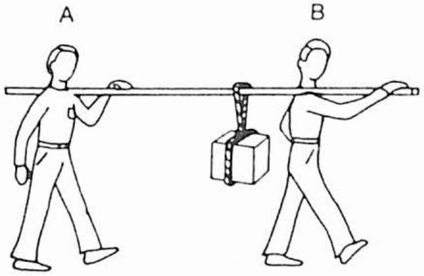
Intelligence is a complex construct and is composed of as many as 120 different intellectual traits (Guilford, 1967). Traditional intelligence tests, such as those listed in Table 14–2, cover a narrow range of intellectual abilities. They measure knowledge and skills (e.g., verbal comprehension, quantitative reasoning) developed in the course of formal education (Anastasi, 1982). For this reason, they should rightfully either be called academic intelligence tests or scholastic aptitude tests.

Aptitude tests The demands of vocational selection have led psychologists to develop a large number of special aptitude tests. Unlike intelligence tests, which measure one's *general* capacity to learn, these tests attempt to predict the likelihood that an applicant will be able to learn *specific jobs.* For instance, there are several commercially available tests that measure mechanical aptitude. These tests are primarily concerned with measuring mechanical reasoning ability and spatial ability. Probably the most widely used test of mechanical reasoning is the Bennett Mechanical Comprehension Test. This instrument employs pictures of common situations involving mechanical principles about which short questions are to be answered. Two sample items taken from Forms S and T of the Bennett are presented in Figure 14–1.

The Revised Minnesota Paper Form Board is a well-known measure of spatial visualization or ability. The applicant is presented with drawings of figures cut into two or more parts (see Figure 14–2) and must be able to visualize how the complete figure would appear if the pieces were put together.

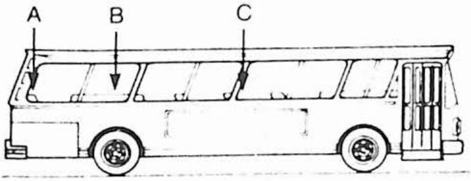
There are numerous clerical tests on the market. Most of them are quite similar in measuring only one aspect of clerical aptitude, namely, perceptual speed. A good example is the Minnesota Clerical Test (see Figure 14–3). Since most clerical jobs involve a multiplicity of office

FIGURE 14–1
Sample items from the Bennett Mechanical Comprehension Test



X

Which man carries more weight?
(If equal, mark C.)



Y

Which letter shows the seat where a passenger will get the smoothest ride?

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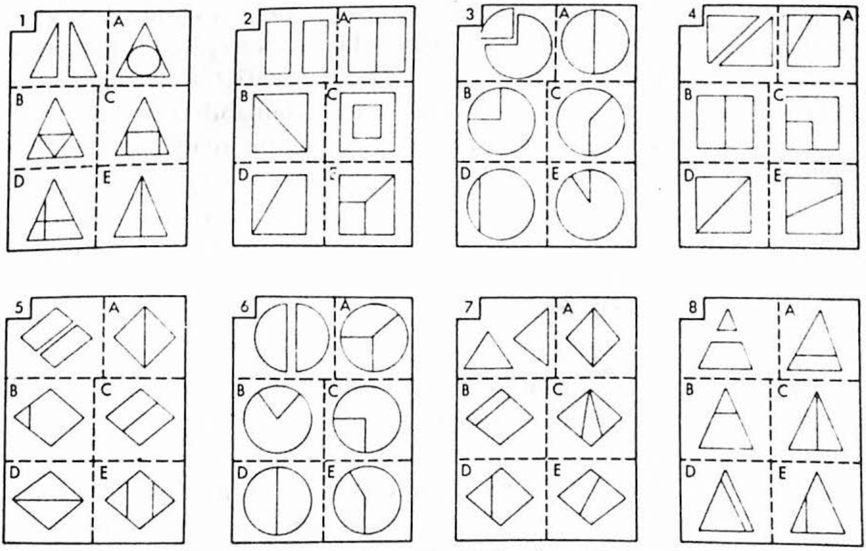
FIGURE 14–2
Sample items from Minnesota Paper Form Board Test



The examinee must pick the figure (from A to E) that shows how the parts will look when assembled.

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FIGURE 14-3
Sample Items from Minnesota Clerical Test

When the two numbers or names in a pair are *exactly the same,* make a check mark on the line between them.

66273894 ______________________ 66273984

527384578 ______________________ 527384578

New York World ____________ New York World

Cargill Grain Co. ____________ Cargil Grain Co.

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skills, some clerical tests combine perceptual speed with other functions necessary for clerical work. For instance, the General Clerical Test is a nine-part test dealing with name and number checking, filing, simple arithmetic, numerical error location, arithmetic reasoning, vocabulary, reading comprehension, spelling, and grammar. It is group administered and yields three overall scores: clerical aptitude, numerical ability, and verbal ability. For certain positions (e.g., secretary or clerk-typist), it is beneficial to use a general clerical test in conjunction with typing and/or stenography tests.

Spatial and mechanical aptitudes are better predictors of success in training than success on the job itself, whereas perceptual accuracy is equally important for both types of criteria. Spatial and mechanical tests give moderate to good predictions of trainability for clerical, service, trades and crafts, industrial (e.g., machine tenders), managerial, sales, protective, and vehicle occupations. Tests of perceptual accuracy have moderate validity for the prediction of both trainability and job proficiency in clerical, managerial, trades and crafts, and sales occupations (Ghiselli, 1973).

Psychomoter tests Numerous jobs such as packer, assembler, mechanic, and machine operator require good arm, hand, foot, or finger dexterity. Thus, many commercially available tests have been developed to measure speed and accuracy of motor coordination. Most of these tests are individually administered and involve the manipulation of actual apparatus. For instance, the Crawford Small Parts Dexterity Test requires the examinee to first use tweezers to insert pins in close-fitting holes and then to place a collar over each pin. The examinee is also asked to place small screws in threaded holes and then screw them down using a small screwdriver.

The most important characteristic of psychomotor tests is their high degree of *specificity* (Anastasi, 1982). That is, the intercorrelations among these tests are so low that we can assume that each instrument is tapping a unique and very specific motor ability. Because of this specificity, it is important to do the following:

1. Make very certain that the particular commercial motor test chosen is valid for the specific job in question.
2. Use commercial motor tests as part of a large battery of selection devices rather than as a single predictor.
3. Try whenever possible to build custom-made motor tests that reproduce as closely as possible the exact movements required on the particular job. Well-constructed job sample tests can often result in higher validities than available commercial tests.

Personality and interest tests The rationale underlying the use of personality and interest tests in selection is that an individual will be a more successful worker if personality and interest patterns closely resemble those of successful employees already on the job in question. Interest inventories are used primarily for vocational counseling where the emphasis is on finding the right type of work for an individual. Nevertheless, many organizations include interest tests as part of their selection batteries. The most well-known and respected of the interest inventories are the Strong-Campbell Interest Inventory (SCII) and the Kuder Preference Record Vocational Form. For selection purposes, an individual's SCII can be scored for a single occupation to determine how closely the applicant's interests resemble those of, let us say, successful sales managers. Most often, the inventory is used by scoring the 124 occupational scales, the 6 general occupational themes, and the 23 basic interest scales in order to determine the applicant's total interest pattern. The Strong-Campbell consists of 325 items and requires the applicant to indicate whether he or she likes, dislikes, or is indifferent to various occupations, school subjects, activities, amusements, and types of people. The examinee is also asked to contrast two activities or circumstances (e.g., *Taking a chance* versus *Playing safe*) and to decide which is more appealing, or whether the two are equally attractive. In the last section, the respondent is asked to describe personal abilities and weaknesses by answering either "Yes," "No," or "?" as to whether certain statements are an apt self-description. Until the development of the latest form (Merged Form T325), male and female examinees were treated separately in that different sets of occupational scales and norms were used. Now the same booklet and profile sheet can be employed with both sexes.

The Kuder Preference Record Vocational Form indicates an applicant's relative interests in ten broad interest areas rather than in specific occupations. The interest scales include: outdoor, mechanical, computational, scientific, persuasive, artistic, literary, musical, social service, and clerical. Examinees are presented with sets of three activities similar to those shown below. The respondent indicates in each set which activity he or she would like most and least (see Figure 14–4).

Self-report personality inventories generally ask examinees how much they "agree" with a statement, how well the statement "describes" them, or which of several alternatives they "prefer most." These tests measure such traits within a person as sociability, need for achievement, and self esteem. Figure 14–5 shows a few typical questions taken from several well-known tests.

Personality and interest tests have several possible limitations as selection devices, the major one being the problem of faking. People can distort their true answers when applying for a job they really desire. To what extent individuals actually do fake their answers in the selection situation is an open question. Fortunately, several of the frequently used self-report personality inventories have verification keys that detect examinees who try to fake. Some personality inventories attempt to minimize faking by asking examinees to choose among several answers that have been carefully matched by the test developer with regard to socially desirable things to say.

The validity of personality and interest tests have been summarized by Ghiselli (1973) for different occupations. Good predictions of trainability and job proficiency criteria are provided for both lower sales occupations (the salesclerk) and higher ones (the sales representative). They have also shown moderate validity for forecasting success as

FIGURE 14–4
Sample items from the Kuder Preference Record Vocational Form

Check Activity You Like Most
and Least in Each Triad

	Most	Least
Visit an art gallery	________	________
Browse in a library	________	________
Visit a museum	________	________
Collect autographs	________	________
Collect coins	________	________
Collect butterflies	________	________

From *Kuder Preference Record Vocational Form CP*. © 1948, G. Frederic Kuder. Reprinted by permission of the publisher, Science Research Associates, Inc.

FIGURE 14-5
Sample items from self-report personality inventories

I am an important person. ☐ True ☐ False

Which of these two statements is more characteristic of what you like?

A. I like to talk about myself to others.
B. I like to work toward some goal that I have set for myself.

Prefers to get up early in the morning

☐ Most like me ☐ Least like me

executives and administrators, supervisors, tradesmen and craftsmen, and vehicle operators.

Projective tests Projective tests present the individual with ambiguous stimuli, such as inkblots, incomplete sentences (e.g., The thing I dislike most is . . .), or vague pictures. The underlying assumption is that these unstructured test materials will serve as a screen on which the examinee will "project" his or her dominant needs, anxieties, conflicts, and thought processes (Anastasi, 1982). A trained examiner studies the examinee's responses and makes an assessment of the individual. Originally, these tests were developed by clinical psychologists for analyzing the abnormal personality. Whether or not one favors the use of projective techniques in personnel administration, there can be no denying that they are widely used for executive selection, especially by management consulting firms.

In general, the real worth of most projective tests for personnel selection is questionable despite their apparent popularity (Kinslinger, 1966). However, there has been some indication that *certain* projective tests may possess validity. The Thematic Apperception Tests (TAT) consists of a series of cards containing vague black-and-white pictures. The examinee is asked to make up a story to fit each picture. When scored for such traits as need for achievement and need for power, the TAT has correlated significantly with executive success (Cummin, 1967; Wainer & Rubin, 1969). As part of an Assessment Center program (to be discussed later in the chapter), Grant, Katkovsky, and Bray (1967) administered three projective tests (one of which was the TAT) to 201 management personnel. Nine ratings were made by clinicians on each candidate based on the test protocols. The nine ratings were then correlated with salary progress seven to nine years after original assessment. Ratings on several of the variables (e.g., need for achievement, subordinate role, dependence, leadership role) correlated significantly with the criterion.

Miner (1960, 1961, 1962) has reported positive results using the Tomkins-Horn Picture Arrangement Test (PAT) for both the selection of petroleum dealer salespeople and tabulating machine operators. This test asks the individual to look at 25 sets of three pictures, arrange each set of pictures into a sensible order, and write a sentence describing each picture to tell a story. Miner (1978) has also reported three studies supporting the validity of the Miner Sentence Completion scale for predicting managerial success (See Chapter 7). This instrument consists of 40 incomplete sentences (e.g., Getting ahead . . . , and Top management . . .). It provides separate scores on the different aspects of managerial motivation.

Pros and Cons of Psychological Testing in Organizations It is important that one be familiar with the criticisms and retorts that have been made regarding the use of tests in industry. Critics of testing have managed to make themselves heard in many places, including books, newspapers, television, and even congressional investigations (Whyte, 1956; Gross, 1962). Their main points can be summarized as follows:

1. Certain questions on personality tests pertaining to sex attitudes and personal habits constitute an invasion of privacy.
2. Tests are used to select only those individuals for executive positions who are conformists and lack individuality.
3. Employment tests are often used, either inadvertently or intentionally, to discriminate against the disadvantaged.
4. There are tests for sale by testing organizations and unscrupulous test publishers that are worthless.
5. The generally low validities of tests make them virtually useless.

What can be said in response to these criticisms? First, psychologists are concerned with protecting the privacy of job applicants. Any information an applicant is asked to reveal must be job related, otherwise, it is clearly inappropriate. Further, applicants should be told the purposes of testing as well as how the information will be used. Second, tests are designed to predict already existing criteria, not to change them. If executive success involves being a conformist, this is the kind of individual a valid test will select. As criteria change over time (and they do), the kind of applicant selected will change accordingly. Third, the Equal Employment Opportunity Commission (EEOC) and the Office of Federal Contract Compliance Programs (OFCCP) are trying to ensure that organizations properly validate their tests before using them for selection purposes. Governmental validation requirements are stated in the *Uniform Guidelines on Employee Selection Procedures* (1978). Fourth, as personnel administrators become more knowledgeable about testing and become familiar with the *Standards for Educational and Psychological Tests* published by the American

Psychological Association, fly-by-night firms will disappear for want of clients. The current version of the *Ethical Principles of Psychologists* is specifically directed toward the proper use of psychological tests. Finally, psychological tests can and do substantially improve the selection process, especially when they are used as part of a properly developed selection battery. They are not costly when compared with other selection devices (e.g., interviews) and do not normally take much time to administer.

Biographical data

Rarely does a person apply for a job in a large organization without being asked to complete some kind of application form as a first step in the selection process. The typical application blank contains items pertaining to the applicant's education, previous employment, military record, health, references, and such personal items as leisure activities and debts. Most states have fair employment practice laws that make it illegal to ask certain questions pertaining to an applicant's race, religion, sex, national origin, and age. Although there are no firm guidelines on this matter, the EEOC and the OFCCP may investigate items appearing on an organization's application form and recommend removal of those questions considered discriminatory in nature (Schultz, 1982). Interestingly, these agencies require organizations to maintain detailed records of the characteristics (i.e., race, age, sex) of their applicant population and new hires. This information can be legally collected by asking applicants to complete index cards requesting this highly sensitive information and nobody involved in the selection decision is allowed to see the cards in order not to bias their judgments.

The major problem with conventional application forms is the haphazard way in which they are usually developed. Typically, application blanks are gathered from other organizations by personnel administrators, who then decide which of these items ought to be included in their own form. Rather than risking the omission of any important information, the result is an unwieldy form consisting of many irrelevant items. In fact, it is not unusual for an applicant to spend more than an hour in the personnel department completing a long and irritating form. It wastes the time of both the applicant and the personnel manager. It adversely affects the public image of the organization as well.

Constructed properly, a weighted application blank can be and often is one of the most valuable selection and placement devices. Numerous studies have shown that it can be used successfully to predict such criteria as tenure or turnover (Cascio, 1976; Fleishman & Berniger, 1960; Kirchner & Dunnette, 1957), salary increase (Scollay, 1956), performance ratings by supervisors (Scollay, 1957), and research competence and creativity (Smith, Albright, Glennon, & Owens, 1961). In fact, it has been pointed out that biographical items found on typical application forms often yield higher validity than other predictors such as intelligence, aptitude, interest, and personality tests (Asher, 1972).

How should a progressive personnel department develop its weighted application form? It is important that an application blank consist of *only* those specific items that have been empirically found to be related to future success on the job in question. The simplest method is to examine the relationship between each application blank item (e.g., number of jobs previously held) and some subsequent measure of job success (e.g., job tenure). An item is retained for use with future candidates only if a substantial relationship is found. Once the valid items are identified, each item is weighted in proportion to the magnitude of this correlation.[1] Thus, it is possible to score the blank by summing the weights of the applicant's responses to the items in much the same way that tests are scored. Two additional points need mentioning. First, one must construct separate scoring procedures for each job within an organization. After all, you would not expect the same exact items to predict job success on different jobs. Second, one must examine the validity of the blank on a sample of people separate from those originally used in developing the scoring procedure (cross-validation).

BIOGRAPHICAL INFORMATION BLANK (BIB) The BIB is an enlargement of the traditional application blank and differs from the weighted application form in the following ways:

1. It probes into the applicant's attitudes, preferences, and values, i.e., questions are of a more personal nature.
2. It uses a multiple choice answer format (see Table 14–3 for several examples of BIB-type items).
3. It is usually much longer.
4. It ordinarily does not weight items.
5. It may use statistical procedures to categorize items into factor or cluster scores.
6. It is used primarily for managerial selection.

The advantages of using biographical information items for predicting managerial effectiveness have been neatly summarized by Owens & Henry (1966). First, the method is merely an extension of the typical

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[1] For an excellent discussion of how to develop weights for the application blank, see England (1971). The most comprehensive catalog of life history items has been prepared by the Scientific Affairs Committee, Division of Industrial & Organizational Psychology, American Psychological Association (1966).

TABLE 14–3
Sample biographical information blank items

1. The place in which you spent the most time during your early life was a:
   a. Farm.
   b. Town of less than 2,000.
   c. Town of 2,000 or more but less than 10,000.
   d. City of 10,000 to 100,000.
   e. City larger than 100,000.
2. At what age did you start drinking?
   a. 12 or younger.
   b. 13 to 16.
   c. 17 to 21.
   d. 21 or over.
   e. Never drank.
3. How often do you feel self-conscious?
   a. Frequently.
   b. Occasionally.
   c. Rarely.
   d. Never.
4. When you first left home for school or a job, parting from your family was:
   a. Very easy.
   b. A little difficult because you were reluctant to leave.
   c. Difficult because your family was reluctant to have you leave.
   d. Very difficult because your family was very close.
   e. You have never left home.

Source: Adapted from *A Catalog of Life History Items*, J. R. Glennon, L. E. Albright, and W. A. Owens, Chairman. Scientific Affairs Committee, American Psychological Association, Division 14. Reproduced by The Creativity Research Institute of The Richardson Foundation, June, 1966.

application blank and is likely to be more acceptable than many tests. Second, results showing which items significantly predict job behavior can aid greatly in understanding the important antecedents of managerial effectiveness. Last, empirical validation of biographical items against actual managerial behavior assures that only job-relevant questions will be asked of a job candidate, thereby guarding against charges of willful discrimination against minority groups or "invasion of privacy" by tests designed to "explore the psyche."

Employment interviews

Of all selection devices, the employment interview is one of the most popular and trusted by personnel administrators. A survey conducted several years ago (Spriegel & James, 1958) indicated that 99 percent of the 852 organizations queried at that time used an interview before hiring applicants. There is every reason to believe that the widespread use of the interview has not subsided since this survey and that its popularity will continue in the future. In fact, a more recent survey conducted in 1976 by the Bureau of National Affairs revealed that the management of 90 percent of the participating organizations believed that, of all sources of information about applicants, they had the most confidence in the interview. Even if interviewers were prohibited from participating in the making of selection decisions, there are still four duties they would continue to perform:

> 1. He must answer fully and frankly the applicant's questions about your business, the job, and the working conditions. 2. He must convince the man he is interviewing that yours is a good firm to work for since it furnishes such and such opportunities for growth and advancement (if it does). In other words, he must be skillful in selling your firm to the applicant. 3. He must steer the applicant toward a job for which he is better suited, if there is one somewhere, lest he later discover that job and shift to it only after the firm has spent a few hundred dollars on training him. 4. Finally, the interviewer should leave the prospect, in any case, with the feeling that he has made a personal friend (Bingham, 1949, pp. 272–74).

Most personnel administrators conduct their interviews in a relatively unstructured manner. As the term implies, this is an unplanned, casual, and loosely organized conversation between the interviewer and interviewee. The questions asked and the evaluation of the applicant's answers vary from interviewer to interviewer and applicant to applicant. At the other extreme of the structure continuum is the patterned or structured interview in which a predetermined list of questions are asked of every person applying for a particular job, and there are predetermined correct answers (Pursell, Campion, & Gaylord, 1980). Shown below are three questions that appeared in a 32-item structured interview for hiring inexperienced applicants to work as team members in a pulp and paper mill:

1. You've been instructed to drain a tank, and upon opening the valve nothing comes out. What would you want to know or do before proceeding any further?

   Possible Answers:

5 points:	What's in the tank? Is there anything in the tank? Do I have the right tank? (i.e., series of questions).
3 points:	Ask supervisor why nothing is coming out of tank.
1 point:	Don't know. Assume tank is empty and go on to next job.

2. While performing your normal duties of unloading pulp bales from a rail car, a friend drops by just to have a friendly chat. The friend takes up your time. What would you do?

   5 points: Sorry, can't talk to you now, I'm too busy.
   3 points: Talk to friend for a few minutes and then ask him/her to leave.
   1 point: Do nothing about it.

3. You are walking along a passageway on your way to lunch, and you notice a puddle of oil which you need to pass because it's a narrow passageway. What would you do?

   5 points: I would clean it up with whatever is available and then tell someone about it.
   3 points: Notify supervisor.
   1 point: Ignore it and jump over it.

These interview questions were developed by using the critical incident technique (see Chapter 13) (Latham, Saari, Purcell, & Campion, 1980). The incidents described were taken from reports by supervisors and incumbents of unusually effective or ineffective job behaviors they observed in the past. The incidents were then converted into structured interview questions in which job applicants are asked how they would act in specific situations. Each question can be scored on a 1- to 5-point basis, with benchmarks at 5, 3, and 1 agreed upon by supervisors to maximize objective scoring.

When hiring experienced applicants, the structured or patterned interview questions become much more technical in nature. Listed below are two questions used for hiring "back tenders" on a paper machine:

> Why should calender stacks be put on crawl when not in use rather than left on run after a sheet break?
>
> 5: To prevent excessive overheating and surface wear and damage.
> 3: To keep the rolls from getting hot.
> 1: Makes too much noise.
>
> Why do you use calender-cooling air in building a reel?
>
> 5: To control the soft areas in the reel if caused by hot spots from the calenders.
> 3: To improve reel conditions.
> 1: To cool the rolls.

Since 1915, hundreds of research articles have appeared in the literature on the selection interview. The most significant findings on the reliability and validity of the interview are as follows:

1. Structured interviews yield higher agreement among interviewers (interrater reliability) and have greater validity than do unstructured interviews.
2. Interrater reliability increases when interviewers are furnished with more complete job information.
3. Intrarater reliability (i.e., the extent to which an interviewer reinterviewing the same person gives the same evaluation as previously) appears to be satisfactory in most cases.
4. The interview seems to have its greatest potential for assessing the motivation to work, interpersonal competence, and technical knowledge of job applicants.

Since the 1960s, a small group of researchers has been concerned with studying the decision-making process of employment interviewers in the hope of someday improving their reliability and validity. Here are just a few of their major findings covered in recent review articles by Schmitt (1976) as well as Arvey and Campion (1982):

1. Each interviewer has a specific stereotype of the "ideal" candidate that is used as a standard in assessing actual candidates (Mayfield & Carlson, 1966).
2. Interviewers usually form biases about an applicant early (i.e., first four minutes) in the interview (Springbett, 1958; Webster, 1964).
3. The relative importance given to various content dimensions (e.g., scholastic standing, experience, interests, and activities) varies among interviewers (Hakel, Dobmeyer, & Dunnette, 1970).
4. Interviewers are more influenced by unfavorable than favorable information about an applicant (Miller & Rowe, 1967).
5. Interviewers rate applicants more favorably if the applicants are perceived as being similar to themselves (Rand & Wexley, 1975; Wexley & Nemeroff, 1974).
6. The more an interviewer talks, the more favorably the applicant is evaluated (Mayfield, 1964).
7. Interviewers are susceptible to contrast effects; that is, their evaluations of applicants are influenced by their ratings of immediately preceding applicants (Rowe, 1967; Wexley, Yukl, Kovacs, & Sanders, 1972).
8. Interviewers are vulnerable to "halo effect"—the tendency to allow one's overall impression of an applicant to generalize across trait ratings in either a positive, negative, or neutral direction (see Chapter 13).
9. There are significant differences in nonverbal behavior (e.g., total visual interaction time) on the part of white and black

applicants when interviewed by white or black interviewers (Fugita, Wexley, & Hillery, 1974). Differences in an applicant's nonverbal behavior (e.g., gesturing, smiling, tone of voice) may influence interviewer ratings (Wexley, Fugita, & Malone, 1975).

10. Females are generally given lower evaluations than males when these applicants have similar or identical qualifications. Further, females are given lower ratings for jobs typically "masculine" in nature, whereas males are given lower ratings when being considered for "feminine" jobs (Arvey & Campion, 1982).
11. Attractive candidates are typically preferred regardless of sex (Arvey, 1979).
12. Handicapped and older applicants tend to receive lower evaluations (Arvey, 1979).
13. The reliability and validity of interviews can be enhanced when applicants are evaluated by a board or panel of interviewers (Rothstein & Jackson, 1980).
14. Basing interview questions on job analyses and other information about the job (e.g., critical incidents) can improve interview reliability and validity (Arvey & Campion, 1982).
15. Interviewer training can improve interrater reliability (Heneman, 1975), minimize rating errors (Wexley, Sanders, & Yukl, 1973; Latham, Wexley, & Purcell, 1975), and improve interviewers' questioning techniques, techniques of rapport, active listening skills, attention to relevant material, interview structure, and supportiveness (Howard & Dailey, 1979; Howard, Dailey, & Gulanick, 1979).
16. Interviewees can be trained to present themselves better in the employment interview (Hollandsworth, Dressel, & Stevens, 1977).

Telephone reference checks and letters of recommendation

A widely used technique in selection, especially in the case of higher-level personnel, involves obtaining information about an applicant from former employers or possibly co-workers. The results of various surveys indicate that 82 to 99 percent of respondents use some type of reference check. The two most widely used methods entail a telephone reference check or a formal written letter of recommendation. Beason and Belt (1974) conducted a survey of 150 public- and 100 private-sector employers regarding the use of reference reports. Forty-eight percent of the respondents used reference reports as a means of substantiating information given by the applicant on the application blank, 30 percent used it to gather additional information, and 21 percent saw it as a means of uncovering negative information about the applicant. Thus, the last two groups of respondents, composing 51 percent of the total sample, used reference reports directly for selecting personnel (Muchinsky, 1979).

In order for any of this reference information to have validity, the person providing the references must have detailed knowledge of the individual's strengths and weaknesses in the former job situation, and the informant must be willing to give frank and candid opinions regarding the candidate's limitations. Unfortunately, many times neither of these conditions is realized. Employers write letters of recommendation for former employees whose job skills they barely know. Most of these letters are filled with glowing descriptions of departing employees, either because the former employer wants to be kind, hopes to get rid of an undesirable worker, or fears criticizing someone in writing. This fear of writing something negative about someone has been strengthened by the Privacy Act of 1974 (Public Law 93–579). This act states that individuals have a right to examine letters of recommendation about themselves unless they waive their right to do so. One way to deal with the privacy law is for applicants to sign a release form stating that they waive their rights to examine their letters. Often, employers are reluctant to ask employees to sign this form. As a result, objective letters of recommendation are hard to come by, since the writer knows that the employee will eventually see the letter. Some employers are so concerned about being sued for writing negative things about others that they will verify in writing only the last job title, dates of employment, and salary (Glueck, 1982). In light of all this, more and more organizations are using telephone reference checks conducted by employment interviewers or other personnel specialists (Beason & Belt, 1974).

Like other selection devices, letters of recommendation and telephone reference checks must be validated in accordance with EEOC guidelines (see the section on Equal Employment Opportunity in Chapter 15). What can be done by an organization to maximize its chances of having a valid reference check procedure?

1. Research has shown that references are most predictive when they are obtained from the applicant's former supervisor (Mosel & Goheen, 1959; Browning, 1968). Even so, always determine whether or not the recommender has the knowledge and credentials to make an accurate evaluation of the applicant.
2. To promote consistency across applicants, develop a scorable standardized recommendation blank rather than using unstructured letters of recommendation. Similarly, develop a structured telephone reference check rather than using a casual, unstructured phone conversation.

3. Make your questions as specific and behavioral as possible (e.g., How often a month was this applicant absent from work? Did the applicant ever get into overt arguments with peers?) Questions of this type would surely be better than those often used: Do you think the applicant is motivated? aggressive? personable? stable?
4. Base your questions on the job specifications (i.e., skills, knowledge, and abilities) derived from an analysis of the job. A panel of three to six individuals knowledgeable about the job could rank these specifications in terms of relative importance and then develop either a structured telephone inquiry or a reference check form (Kessler & Gibbs, 1975).

Peer ratings and supervisory judgments

Although peer rating, sometimes called buddy ratings or peer nominations, has been used extensively in military situations, other types of organizations have only recently turned to this technique. Research findings provide convincing support of its usefulness for predicting later measures (promotions and global ratings) of managerial success (Kraut, 1975; Roadman, 1964). Other studies have shown the value of peer ratings as predictors of sales performance (Mayfield, 1972; Waters & Waters, 1970). In most cases, peer evaluations are obtained from individuals during a three- or four-week training course and then correlated with subsequent measures of sales or managerial performance. The technique is also useful in identifying potential supervisory personnel within a group and is quite predictive of later performance (Weitz, 1958).

Basically, this technique involves each member's evaluation of every other group member on a certain characteristic, for example, "success as a future manager." There are three main variations of the technique. In one variation, peer ranking, each individual literally *ranks* all or some portion of his or her peers from "best" to "worst" on the characteristic being considered. The average rank received by each person is used as the individual's score. In the second variation, peer nomination, each individual *nominates* a specified number (e.g., five) of "high" and/or "low" peers on some characteristic. Research by Kaufman and Johnson (1974) suggests that negative nominations contribute little to peer rating scales and that simply the "number of positive nominations" an individual receives appears to be the most useful scoring strategy. This makes even more sense when you experience the difficulties encountered in obtaining "low" evaluations from individuals about their peers. This scoring method eliminates the frequently heard complaint that peer ratings ask a rater to "cut a buddy's throat" (Webb, 1955). In the third variation (peer rating), each individual rates each peer on a given set of performance or personal characteristics, using any one of the rating scales discussed in Chapter 13.

Each of these three peer assessment methods has its own unique strengths and weaknesses (Kane & Lawler, 1978). The peer ranking method suffers from a lack of research on its reliability, validity, and freedom from bias. Nevertheless, from the limited evidence that has been gathered thus far, it seems to be the best method for differentiating throughout the entire range of performance levels (i.e., best worker to worst worker). The peer nomination method is best for differentiating those individuals who are extreme on a variable from those who are not. In this sense, it is an excellent approach for identifying supervisory potential within an existing work group. Its main limitation is that it is virtually useless as a developmental feedback device, since it provides no information about a person's score and no information for all those individuals who received no nominations. Finally, the strengths and weaknesses of peer ratings are nearly the reverse of those for peer nomination. Peer rating is most useful for feedback purposes, since people can be rated in terms of specific behaviors and/or outcomes. However, it is generally characterized by lower levels of reliabilty and validity than the other methods due to the susceptibility of rating scales to rater biases (see Chapter 13).

There is considerable evidence that peer ratings differ considerably from supervisory evaluations of the same employees. This is not surprising when one considers that peers and supervisors see different aspects of an individual's behavior. There is also evidence to suggest that such extraneous factors as appearance, acquaintanceship, race, and friendship contaminate peer ratings less than ratings given by superiors (Gordon & Medland, 1965; Hollander, 1956, 1965; Schmidt & Johnson, 1973). What does all this mean in terms of personnel selection and placement? It suggests that the accuracy of personnel decisions may be improved by combining ratings from several sources—supervisors, peers, customers, and self (Kavanaugh, MacKinney, & Wolins, 1971; Lawler, 1967). The use of different types of raters reduces bias and capitalizes on the particular observational opportunities of each rating source (Latham & Wexley, 1981).

Assessment centers

The term *assessment center* refers to a standardized off-the-job procedure used to identify managerial potential for purposes of selection, placement, promotion, and/or development (Finkle, 1976; Moses & Byham, 1977). Although no two programs in industry are exactly alike, they all place heavy reliance upon the use of multiple methods of assessment as well as the observation of behavior in simulated situations. Here are some typical procedures included in assessment centers:

In-basket tests are situational exercises consisting of letters, memos and memoranda. The candidates being appraised are asked to pretend that these materials have accumulated in their in-baskets. They are instructed to do as much as possible toward solving the problems the materials present. This technique is described in more detail in Chapter 17.

Manufacturing problems are games in which, for example, six candidates are given capital with which to set themselves up in business. Their task as a group is to organize their business and buy, manufacture, and sell some product so as to make as much profit as possible. There are several time periods in the game, and the cost of parts and selling prices of finished products varies from period to period.

A *Leaderless Group Discussion* (LGD) is a conference between several assessees in which no formal leader has been assigned. The discussion is often of a competitive nature in that each candidate takes a position and tries to win its adoption by the group. For example, each candidate might be asked to assume that she/he has a supervisor reporting to her/him who is qualified for promotion. The participants are told to discuss the strengths and weaknesses of each supervisor and to reach a group decision as to which one should be promoted. Sometimes, the LGD is of a cooperative nature in which each candidate is assigned a role and told to help the group make an important decision (e.g., whether or not to merge with another company).

Another procedure sometimes used is to conduct personal interviews building upon the candidate's responses to a biographical information blank. Peer ratings and self-ratings are often collected after each situational exercise. Paper-and-pencil tests of mental ability, reading, interest, and personality are often administered. Certain projective tests may be used to assess the candidate's motivation for management. Assessees are typically given a writing exercise (e.g., a short autobiographical essay) and a speaking exercise to assess their oral and communication skills. Finally, some centers regard observations of behavior at coffee breaks and meals as relevant data; other centers base their evaluations solely on the formal exercises.

The number of evaluative methods used varies across centers, but the usual number is seven (Bender, 1973). The candidates spend anywhere from one to seven days at the center in groups of six or some multiple thereof. Assessments are the combined judgments of several managers two or more levels above the participants. Sometimes psychologists are also used on the assessment staff. The staff administers the individual tests and observes the candidates during each of the situational exercises. The ratio of staff members to candidates is usually about 1:2 or 1:3. Candidates are evaluated on anywhere from 10 to 25 qualities thought to be important for management success. A list of the qualities used by AT&T (Bray & Grant, 1966; Bray, Campbell, & Grant, 1974) is given below:

Scholastic aptitude.
Oral and written communication skill.
Human relations skill.
Personal impact.
Perception of threshold social cues.
Creativity.
Self-objectivity.
Social objectivity.
Behavior flexibility.
Tolerance of uncertainty.
Resistance to stress.
Energy.
Decision making.
Need approval of superiors.
Need approval of peers.
Inner work standards.
Need advancement.
Need security.
Goal flexibility.
Primacy of work.
Bell-system value orientation.
Realism of expectations.
Ability to delay gratification.
Range of interests.
Organization and planning.

When differences in ratings occur among staff members, they are discussed and resolved. The staff arrives at an overall rating of each candidate's managerial potential, and a report outlining strengths and weaknesses is prepared for the company and for the participant. Feedback is given orally and/or in writing to each participant and often involves a plan for future development.

The assessment center provides a method of evaluating individuals from various organizational functions and geographical locations in a standardized and objective manner. To the extent that the simulation exercises and procedures accurately assess the dimensions of managerial effectiveness, the center yields relevant appraisals. At the present time, more than one thousand organizations are using centers as an aid in management appraisal. Here are just a few of them: Sears Roebuck & Co.; General Electric Co.; AT&T; J. C. Penney Company, Inc.; Eastman Kodak; IBM; Ford Motor Company; and Standard Oil of Ohio. Assessment centers are also used in many foreign countries, such as Japan, Australia, Brazil, and some Western European countries. More than 100,000 individuals have already participated in assessment centers. Although most of these participants have been assessed for supervisory and managerial positions, the assessment center approach has also been used to select individuals for such jobs as salespersons, military police, pharmacists, and stockbrokers.

Overall ratings and predictions made at assessment centers have been validated against a variety of criteria: (1) job performance (performance ratings on the job for which the candidate was assessed), (2) job progress (salary increase and promotion), and (3) job potential (ratings of the probability of future progress). Despite certain methodological shortcomings, the research evidence suggests that assessment centers can be quite effective in predicting managerial success (Huck, 1973). With few exceptions, the validity coefficients have ranged from the .30s to the .60s. This is particularly impressive when one compares these results to the low validities reported for most paper-and-pencil tests of leadership ability (Korman, 1966; Kerr & Schriesheim, 1974). In addition, several studies have shown the superiority of the assessment center approach as compared with conventional methods of evaluation (Campbell & Bray, 1967; Jaffee, Bender, & Calvert, 1970). In general, assessment centers are most useful at "points of discontinuity" in organizational careers; that is, where the knowledges, skills, and abilities essential for advancement are substantially different from those accounting for present success. It also appears that overall evaluations made in assessment centers do not discriminate against female or minority candidates (Huck & Bray, 1976; Moses & Boehm, 1975).

It should be noted that assessment centers can be quite costly depending on their length, location, and number of participants. The typical cost is $500 to $600 for each candidate.

One of the major drawbacks of the assessment center approach is candidate anxiety. It is our experience that some participants come to the center with a "you bet your career" attitude. Although most people are able to handle their anxiety, there are always a few otherwise excellent candidates who cannot. It is important that the center staff be adequately trained to deal with this problem. Several years ago, the International Congress on Assessment Centers met in Quebec, Canada, and adopted a set of ethical guidelines for users of this technique. The guidelines describe minimal acceptable practices concerning organizational support for assessment centers, assessor training, informed consent on the part of participants, use of assessment center data, anc validity issues.

In recent years, some reservations have been expressed about the reliability and validity of the assessment center method. Hinrichs and Haanperä (1976) point out that the assessment center approach possesses adequate reliability when an *overall* assessment evaluation is used for making selection decisions. But, when assessment evaluations are used for individual placement or development purposes rather than selection decision making, it becomes more important to ensure that all of the *individual* qualities assessed (e.g., human relations skill, personal impact, creativity) are *each* being measured reliably. These data can then be used by the candidate for self-development purposes or differential placement decisions. Hinrichs and Haanperä's research results, gathered from assessment centers run by a large manufacturing organization in eight different countries, suggest that the reliability of some of the qualities (e.g., organization and planning, written communication skill, resistance to stress) are relatively low—with an overall average of only .49. To correct this situation, either the exercises intended to exhibit these behaviors need to be modified or perhaps new kinds of exercises need to be developed and substituted.

Klimoski and Strickland (1977) question the kinds of criteria that assessment centers have been validated against (e.g., salary increase, promotions, ratings of the probability of future progress). There is some concern that these kinds of measures do not really reflect managerial or supervisory effectiveness. This might mean that instead of predicting actual job performance, the assessment staff is merely identifying those candidates who fit the organization's mold most closely. Although there are a few studies that have shown that the assessment center ratings relate to actual job performance, more are needed in the years to come. Only in this way can we be certain that assessment centers identify the most effective candidates.

SUMMARY

Recruitment and selection of employees are parts of the process used by organizations to upgrade the quality of their membership. A selection program consists of various selection devices, which are administered to applicants at the time of admission (or hiring) to predict subsequent performance. These devices are also used sometimes in selecting employees to be promoted to a higher-level position within the organization.

One major type of selection device is a psychological test. The essential qualities of a good test include high reliability, sound validity, standardization, and the availability of norms. Tests have been developed to measure such diverse things as intelligence, aptitudes, personality, interests, and motor coordination.

A selection program may also include other selection devices, such as an interview, application blank, biographical information blank, telephone reference checks, letters of recommendation, peer appraisals, and supervisor ratings. The assessment center is an extremely popular method of selecting and promoting managers and salespeople. Assessment centers usually administer a variety of selection devices to participants, with an emphasis on situational tests, such as business games, leaderless group discussions, and in-baskets.

Each kind of selection device has certain unique advantages as well as certain limitations or disadvantages. The applicability of the selection devices and ways to improve their effectiveness were considered in this chapter. In the next chapter, we will describe the procedures used to validate selection devices and set up selection programs that are fair to all applicants.

REVIEW AND DISCUSSION QUESTIONS

1. Describe or explain each of the following **key terms**: *aptitude test, peer nominations, BIB, projective test, reliability, norms, standardization, peer rankings, weighted application blank, in-basket tests, leaderless group discussion.*
2. Differentiate clearly the following types of validity: content validity, predictive validity, concurrent validity, and criterion-related validity.
3. Describe how application blanks should be developed to maximize their usefulness. Contrast this procedure with how application blanks are usually constructed.
4. How would you suggest that an organization conduct its employment interviews?
5. Suppose you were thinking about ordering a certain paper-and-pencil test from a test publisher. What information about the test would you want to be included in the manual accompanying the test?
6. Discuss your general feelings about the use of psychological testing in organizations. Are you for it or against it? Defend your opinion.
7. What is your opinion regarding the use of letters of recommendation by faculty for student admissions to college and graduate schools?
8. What selection procedures would you use to select applicants for a managerial job?
9. Discuss the strengths and limitations of the assessment center procedure.
10. What are the main features of an interview that is "structured"?

11. Discuss some of the judgmental errors that interviewers can commit if they are not careful.
12. How do you feel about organizations using personality and projective tests for hiring applicants?
13. What is the value of having norms? Do they help in personnel selection? Do they help in career counseling?
14. What are the three methods for determining test reliability? How do they differ from one another?
15. Would you advise using interests tests for personnel selection?

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15

Selection decisions and equal employment opportunity

Recent federal legislation has focused considerable attention on the obligation of organizations to validate or demonstrate the job-relatedness of their selection instruments before using them. Despite the establishment of two powerful agencies (Equal Employment Opportunity Commission and Office of Federal Contract Compliance Programs) to enforce this legislation, there are still companies that continue to use selection and placement devices for which there is no validity evidence. It almost goes without saying that laws and bureaucratic agencies can only do so much to bring about mass cultural change—specifically, the proper use of selection devices and the elimination of unfair discrimination against minority group members and women. Legislation must be supported by education. That is, personnel administrators and managers must be instructed in the proper procedures for validating their selection devices. Thus, the main objective of this chapter is to first discuss the specific techniques involved in job analysis, and then present the reader with the proper methods of validation. Following this, we will briefly devote our attention to personnel placement, the federal guidelines on employee selection procedures, and fair employment.

JOB ANALYSIS

A written statement describing the duties and responsibilities of a job is commonly referred to as a *job description*. It specifies what a worker does, how, why, and the circumstances under which it is done. The individual qualifications needed by an employee to carry out these duties and responsibilities is called a *job specification* or job requirements. Traditionally, the process of describing work performed and specifying employee characteristics has been known as a *job analysis*. It is used by organizations to determine salary range for jobs, design training programs, plan career paths, design jobs, study safety factors, do human resource planning, and make performance appraisals. In addition, job analysis is used to determine the kinds of selection devices (e.g., wage determination, training, performance appraisal) and criteria to be utilized in a validation study. Such an analysis may indicate, for example, that the job requires computational accuracy, mechanical reasoning ability, motor coordination, and spatial ability. Knowledge of these specifications would dictate the particular set of predictors chosen for study.

Large organizations often employ personnel specialists who are trained as job analysts; smaller companies typically use consultants for this function. Job analysts gather job information by using various methods, such as observing incumbents on the job, performing the job themselves (if possible), asking incumbents to fill out checklists and questionnaires, conducting individual and group interviews, and asking incumbents to maintain diaries of their daily activities. Quite often, the *Dictionary of Occupational Titles* (commonly called the DOT) prepared by the U.S. Department of Labor is used as a preliminary to job analysis. It lists about 22,000 military and civilian occupations and describes each one in a manner illustrated in Figure 15–1.

Although these descriptions are brief and general, they familiarize analysts with the general nature of the job and its terminology before beginning their own detailed analysis. In addition, the DOT provides each occupation with a nine-digit occupational code number that can aid the analyst in understanding the interrelationship among different jobs. In the example shown in Figure 15–1, the code number 652.382–010 classifies the occupation called Cloth Printer. The first three digits designate a particular occupational group. All occupations are clustered into one of nine broad categories and each category has a number, which is used as the first digit. For example, Machine Trades Occupations are designated by a first digit 6. These categories break down into 82 specific divisions (designated by the first two digits). For example, Printing Occupations is number 65. Divisions, in turn, break down further into homogeneous groups (first three digits)—Printing Machine Occupations, 652. The middle three digits of the DOT code indicate what an employee in that occupation does with respect to data, people, and things (see Figure 15–2). The three digits in our example tell us that a cloth printer is "compiling" in relation to

FIGURE 15–1
An extract from the *Dictionary of Occupational Titles*

652.382–010 CLOTH PRINTER (any ind.) printer; printing-machine operator.

Sets up and operates machine to print designs on materials, such as cloth, fiberglass, plastics sheeting, coated felt, or oilcloth. Turns handwheel to set pressure on *printing rollers,* according to specifications. Turns screws to aline register marks on printing rollers with register marks on machine, using allen wrench. Sharpens *doctor,* using file and oilstone, and verifies evenness of blade, using straightedge. Alines doctor against printing roller, using handtools. Dips color from tubs into color boxes to supply printing rollers. Scans cloth leaving machine for printing defects, such as smudges, variations in color shades, and designs that are out of register (alinement). Realines printing rollers and adjusts position of *blanket* or back-grey cloth to absorb excess color from printing rollers. Records yardage of cloth printed. Coordinates printing activities with workers who feed and doff machine and aid in setting up and cleaning machine. May notify COLORIST (profess. & kin.) when color shade varies from specifications. May mix own colors. May mount printing rollers on machine for change of pattern [PRINTING-ROLLER HANDLER (textile)]. May position knives specified distance from edge of plastics material to trim excess material from edges. When printing samples of new patterns and novelty designs is designated as NOVELTY-PRINTING-MACHINE OPERATOR (textile) or PROOFING-MACHINE OPERATOR (print. & pub.). May set up and operate cloth printing machine utilizing caustic soda paste instead of color paste to print designs on cloth which shrink to form *plisse,* and be designated PLISSE-MACHINE OPERATOR (textile).

Source: *Dictionary of Occupational Titles,* 4th ed. (Washington, D.C.: U.S. Department of Labor, 1977).

data, "taking instructions-helping" in relation to people, and "operating-controlling" in relation to things. The last three digits in the occupational code number indicate the alphabetical order of titles within the six-digit code groups. They serve to distinguish a particular occupation from all the others.

Once the job information is collected, it must be assembled in a concise and logical manner. An excellent format developed by the U.S. Department of Labor and used by many job analysts is presented in Figure 15–3. Besides providing a description of the tasks performed by the workers (item 15), the analyst rates the job in terms of data, people, and things, again using the three hierarchies in Figure 15–2.

FIGURE 15–2
Three worker-function hierarchies used for rating data, people, and things

Data (4th digit)	*People (5th digit)*	*Things (6th digit)*
0 Synthesizing	0 Mentoring	0 Setting up
1 Coordinating	1 Negotiating	1 Precision Working
2 Analyzing	2 Instructing	2 Operating-controlling
3 Compiling	3 Supervising	3 Driving-operating
4 Computing	4 Diverting	4 Manipulating
5 Copying	5 Persuading	5 Tending
6 Comparing	6 Speaking-signalling	6 Feeding-offbearing
	7 Serving	7 Handling
	8 Taking instructions-helping	

Source: U.S. Department of Labor, *Dictionary of Occupational Titles*, 4th ed. (Washington, D.C.: U.S. Government Printing Office, 1977).

The analyst also makes a judgment about the human traits or attributes that are considered important to a job (item 6). For example, the analyst rates the General Educational Development (GED) and Specific Vocational Preparation (SVP) needed. Ratings are also made on the following aptitudes: G (Intelligence), V (Verbal), N (Numerical), S (Spatial), P (Form Perception), Q (Clerical Perception), K (Motor Coordination), F (Finger Dexterity), M (Manual Dexterity), E (Eye-Hand Coordination), and C (Color Discrimination). In addition, the analyst rates the job in terms of Temperaments, Interests, Physical Demands, and Environment Conditions. The bulk of the Job Analysis Schedule involves item 15, Description of Tasks. The percentages in parentheses show the analyst's estimate of the relative proportion of time spent in each of the tasks.[1]

Judgments regarding job specifications should involve procedures which are systematic and standardized. One such procedure is to have job analysts, supervisors, and personnel specialists rate various worker trait requirements according to what extent each is needed to perform the job successfully. The job specifications for people already trained will include the amount and quality of previous work experience, whereas the specifications for untrained people will include such things as aptitudes, interests, and personality. It is quite important that the "specs" not be too broad and ambiguous (e.g., "must be a good person, hard working"), otherwise they are practically useless. In addition, there is always the danger of requiring more education and experience

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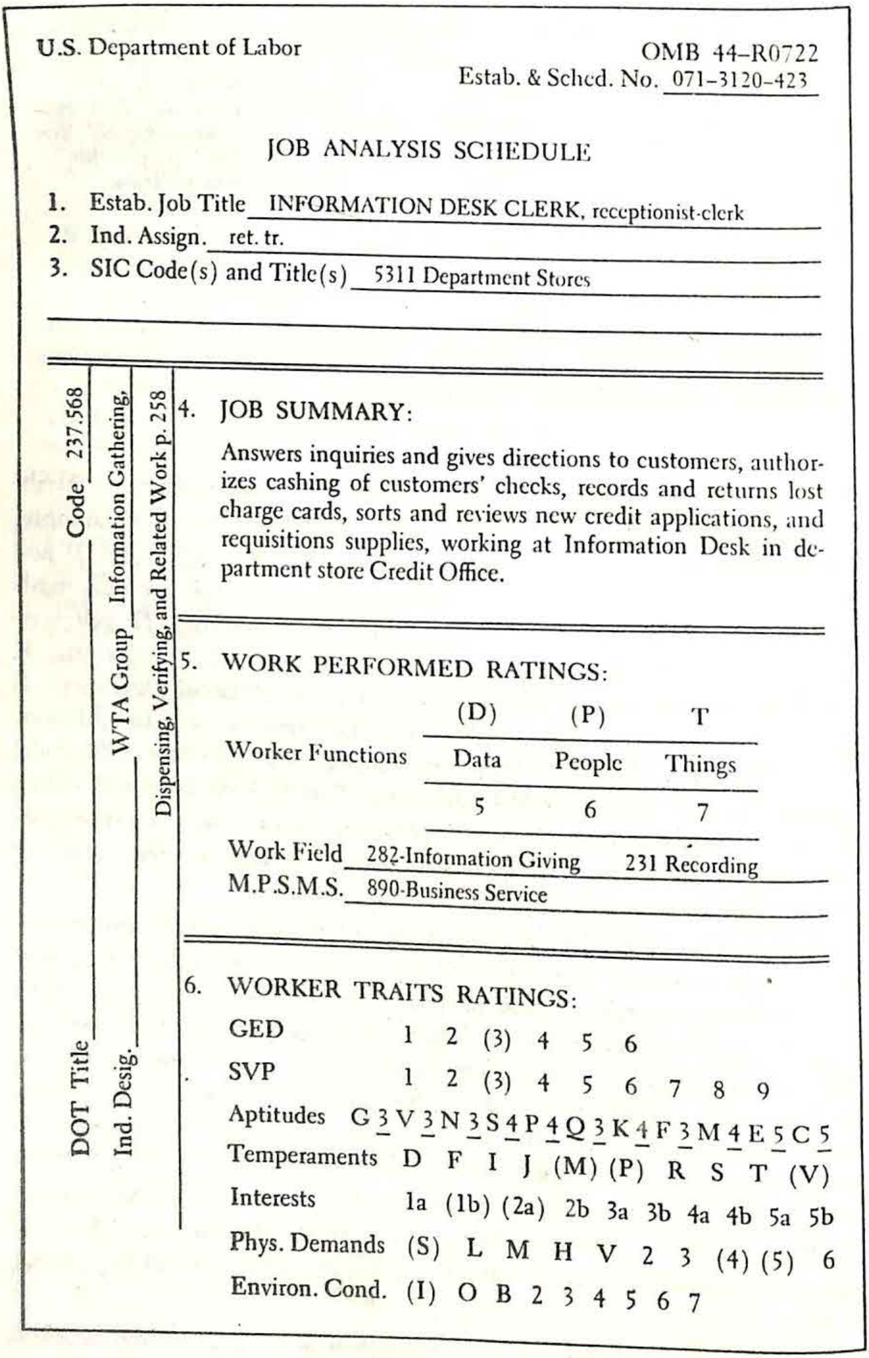
[1] The specific directions for preparing this type of job analysis form are provided in the *Handbook for Analyzing Jobs* (U.S. Department of Labor, 1972).

FIGURE 15-3
Job analysis form (used by the U.S. Department of Labor)



U.S. Department of Labor

OMB 44-R0722
Estab. & Sched. No. 071-3120-423

JOB ANALYSIS SCHEDULE

1. Estab. Job Title INFORMATION DESK CLERK, receptionist-clerk
2. Ind. Assign. ret. tr.
3. SIC Code(s) and Title(s) 5311 Department Stores

Code 237.568
DOT Title
WTA Group Information Gathering, Dispensing, Verifying, and Related Work p. 258
Ind. Desig.

4. JOB SUMMARY:

Answers inquiries and gives directions to customers, authorizes cashing of customers' checks, records and returns lost charge cards, sorts and reviews new credit applications, and requisitions supplies, working at Information Desk in department store Credit Office.

5. WORK PERFORMED RATINGS:

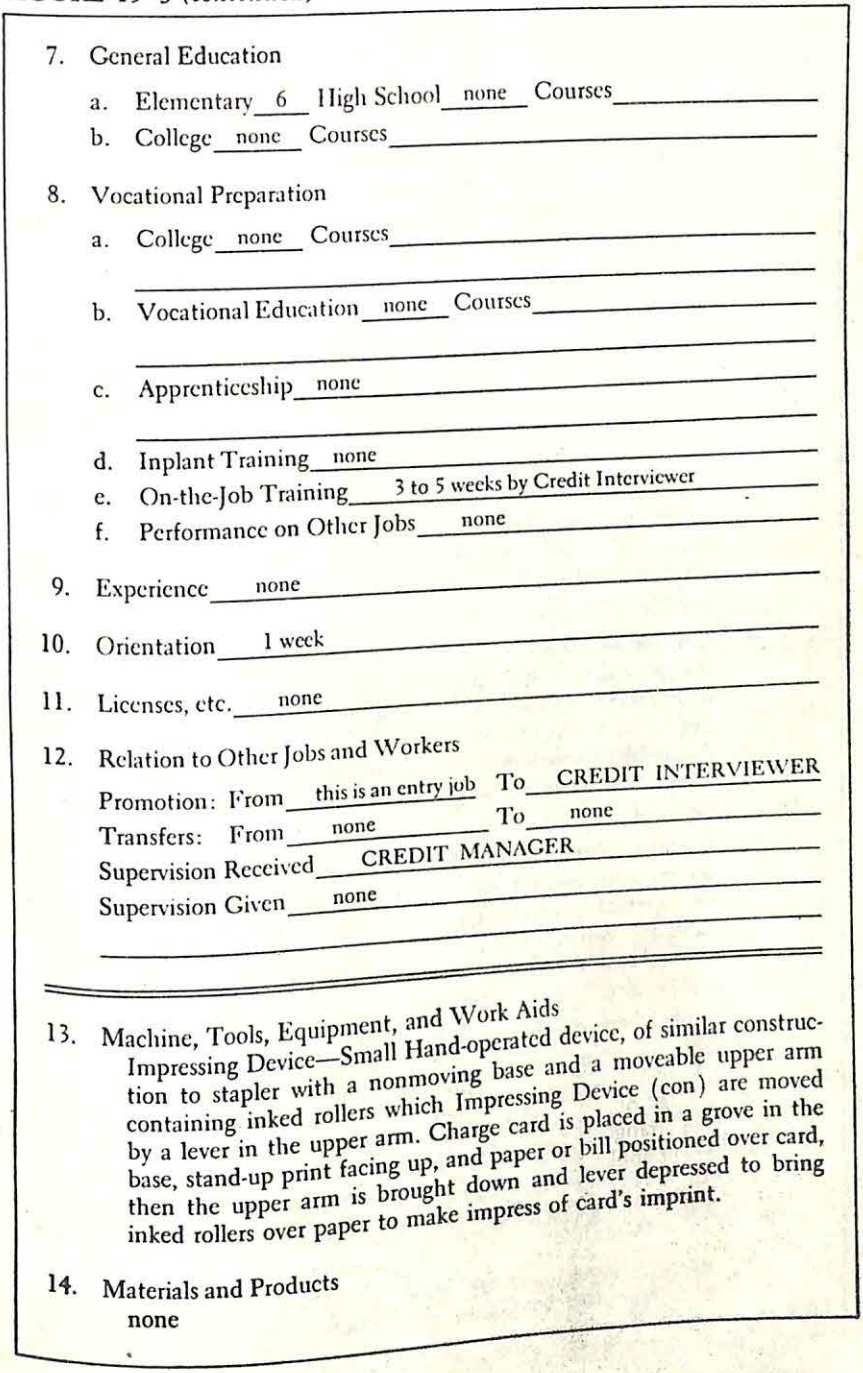
	(D)	(P)	T
Worker Functions	Data	People	Things
	5	6	7

Work Field 282-Information Giving 231 Recording
M.P.S.M.S. 890-Business Service

6. WORKER TRAITS RATINGS:

GED 1 2 (3) 4 5 6
SVP 1 2 (3) 4 5 6 7 8 9
Aptitudes G 3 V 3 N 3 S 4 P 4 Q 3 K 4 F 3 M 4 E 5 C 5
Temperaments D F I J (M) (P) R S T (V)
Interests 1a (1b) (2a) 2b 3a 3b 4a 4b 5a 5b
Phys. Demands (S) L M H V 2 3 (4) (5) 6
Environ. Cond. (I) O B 2 3 4 5 6 7

FIGURE 15–3 *(continued)*



7. General Education
   a. Elementary 6 High School none Courses
   b. College none Courses

8. Vocational Preparation
   a. College none Courses
   b. Vocational Education none Courses
   c. Apprenticeship none
   d. Inplant Training none
   e. On-the-Job Training 3 to 5 weeks by Credit Interviewer
   f. Performance on Other Jobs none

9. Experience none

10. Orientation 1 week

11. Licenses, etc. none

12. Relation to Other Jobs and Workers

Promotion: From this is an entry job To CREDIT INTERVIEWER

Transfers: From none To none

Supervision Received CREDIT MANAGER

Supervision Given none

13. Machine, Tools, Equipment, and Work Aids

Impressing Device—Small Hand-operated device, of similar construction to stapler with a nonmoving base and a moveable upper arm containing inked rollers which Impressing Device (con) are moved by a lever in the upper arm. Charge card is placed in a grove in the base, stand-up print facing up, and paper or bill positioned over card, then the upper arm is brought down and lever depressed to bring inked rollers over paper to make impress of card's imprint.

14. Materials and Products

none

FIGURE 15–3 ***(continued)***

15. Description of Tasks:

    1. Answers inquiries and gives direction to customers: Greets customers at Information Desk and ascertains reason for visit to Credit Office. Sends customer to Credit Interviewer to open credit account, to Cashier to pay bills, to Adjustment Department to obtain correction of error in billing. Directs customer to other store departments on request, referring to store directory. (50%)

    2. Authorizes cashing of checks: Authorizes cashing of personal or payroll checks (up to a specified amount) by customers desiring to make payment on credit account. Requests identification, such as driver's license or charge card, from customers, and examines check to verify date, amount, signature, and endorsement. Initials check, and sends customer to Cashier. Refers customer presenting Stale Date Check to bank. (5%)

    3. Performs routine clerical tasks in the processing of mailed change of address requests: Fills out Change of Address form, based on customer's letter, and submits to Head Authorizer for processing. Files customer's letter. Contacts customer to obtain delivery address if omitted from letter. (10%)

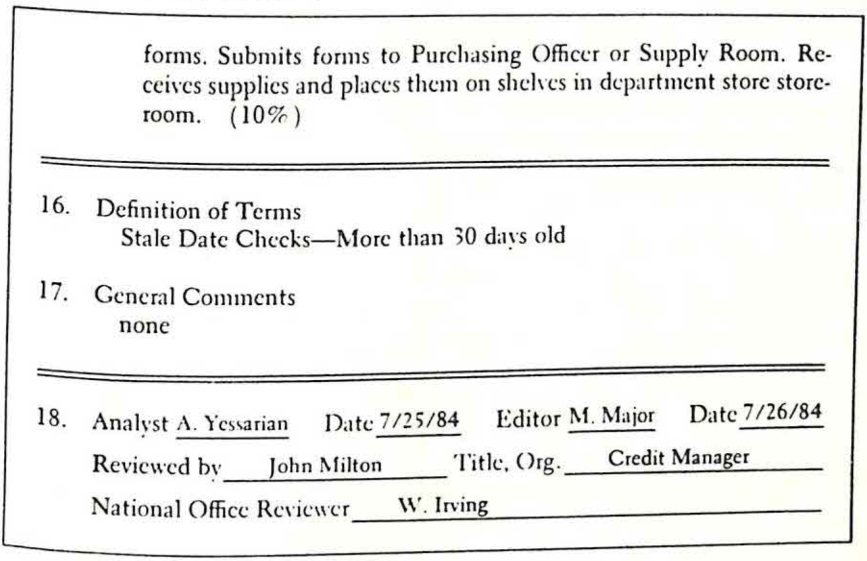
    4. Answers telephone calls from customers reporting lost or stolen charge cards and arranges details of cancellation of former card and replacement: Obtains all possible details from customer regarding lost or stolen card, and requests letter of confirmation. Notifies Authorizer immediately to prevent fraudulent use of missing card. Orders replacement card for customer when confirming letter is received. (10%)

    5. Records charge cards which have inadvertantly been left in sales departments and returns them to customer: Stamps imprint of card on sheet of paper, using Imprinting Device. Dates sheet and retains for own records. Fills out form, posting data such as customer's name and address and date card was returned, and submits to Authorizer. Makes impression of card on face of envelope, inserts card in envelope, and mails to customer. (5%)

    6. Sorts and records new credit applications daily: Separates regular Charge Account applications from Budget Accounts. Breaks down Charge Account applications into local and out-of-town applications and arranges applications alphabetically within groups. Counts number of applications in each group and records in Daily Record Book. Binds each group of applications with rubber band, and transmits to Tabulating Room. (10%)

    7. Prepares requisitions and stores supplies: Copies amounts of supplies requested by Credit Department personnel onto requisition

FIGURE 15–3 *(concluded)*



forms. Submits forms to Purchasing Officer or Supply Room. Receives supplies and places them on shelves in department store storeroom. (10%)

16. Definition of Terms
Stale Date Checks—More than 30 days old

17. General Comments
none

18. Analyst A. Yessarian Date 7/25/84 Editor M. Major Date 7/26/84
Reviewed by John Milton Title, Org. Credit Manager
National Office Reviewer W. Irving

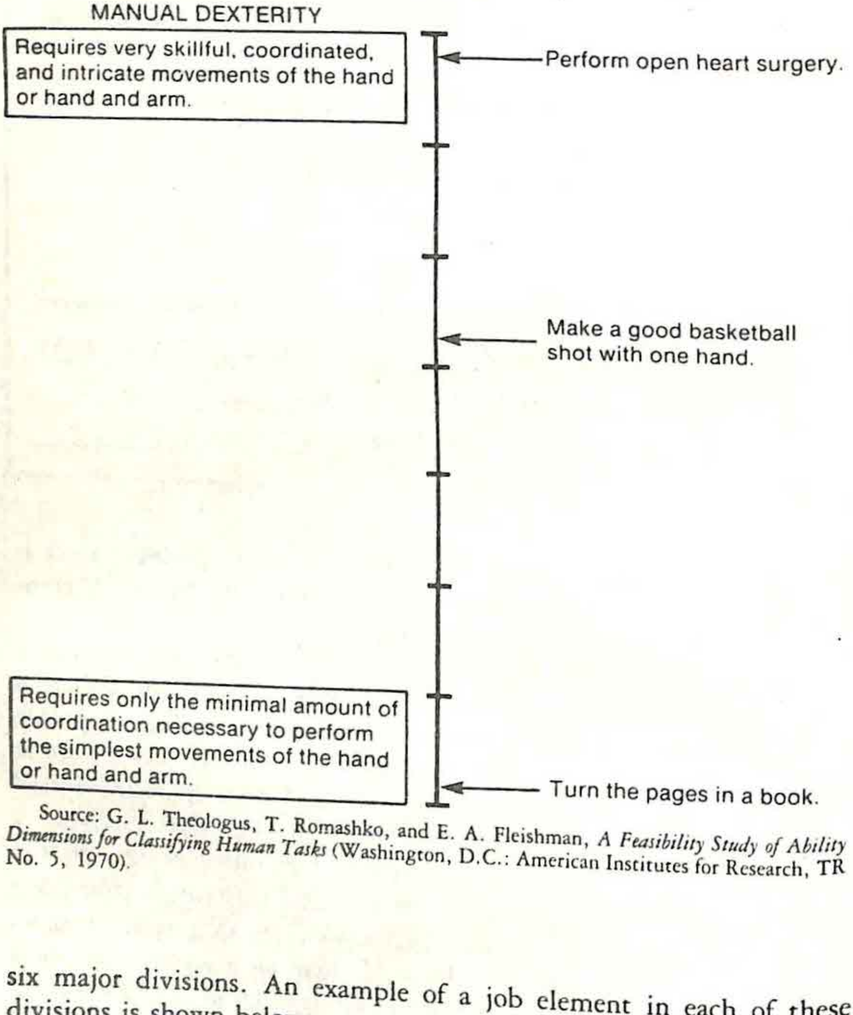
than the job actually requires. This can be a serious problem since it may increase salary costs, boost turnover, and interfere with compliance to affirmative action (to be discussed later).

One excellent method for determining job specifications is to have job analysts, supervisors, and/or job incumbents rate various *abilities* as to *how much* each is needed to do a job. A good example of this approach is the Bell System Ability Requirement Scales currently being used at AT&T to analyze telephone industry jobs. Based upon the initial research by Fleishman and his associates (Theologus, Romashko, & Fleishman, 1970), AT&T jobs are analyzed in terms of 62 different abilities, such as oral expression, mathematical reasoning, gross body equilibrium, spatial orientation, persuasion, reaction time, manual dexterity, and static strength. Each of these abilities is rated on a seven-point scale, with two to four examples of familiar tasks used as benchmarks to indicate specific positions along the scale. An example of one such scale is shown in Figure 15–4. The respondent is asked to pick one number on the scale that he or she thinks is the amount of the ability needed to do the job. It is important that the respondent's ratings reflect the requirements of the job and not any person in the job.

The Position Analysis Questionnaire (PAQ) is an important contribution to the area of job analysis. The PAQ is essentially a structured job analysis questionnaire that can be used for analyzing virtually any job or position. It consists of 194 job elements (or items) arranged into

FIGURE 15-4

An example of an ability scale for rating job specifications


MANUAL DEXTERITY
Requires very skillful, coordinated, and intricate movements of the hand or hand and arm.
Perform open heart surgery.
Make a good basketball shot with one hand.
Requires only the minimal amount of coordination necessary to perform the simplest movements of the hand or hand and arm.
Turn the pages in a book.

Source: G. L. Theologus, T. Romashko, and E. A. Fleishman, *A Feasibility Study of Ability Dimensions for Classifying Human Tasks* (Washington, D.C.: American Institutes for Research, TR No. 5, 1970).

six major divisions. An example of a job element in each of these divisions is shown below:

Division of the PAQ	*Example of Job Elements*
1. Information input	5. Use of visual displays (e.g., dials, clocks)
2. Mental processes	40. Analyzing information or data
3. Work output	76. Operating equipment (e.g., cranes, hoists)
4. Relationships with other persons	106. Public speaking
5. Job context	148. Civic obligations
6. Other job characteristics	165. Irregular hours

Each job element is rated in either a checklist fashion (does or does not apply) or by one of several six-point rating scales (e.g., "extent of use" of the element on the job). In practice, the PAQ can be used by job analysts, supervisors, or the workers themselves. It is computer scored and yields statistically derived dimension scores that reflect the profile of any job. Examples of these dimensions scores include the use of various senses, physical coordination, potentially hazardous job situations, and vigilant/discriminating work activities. It is not intended to replace conventional job descriptions in terms of characterizing the specific duties and responsibilities of the incumbent (McÇormick, Jeanneret, & Mecham, 1972). This instrument has enormous potential for reducing judgmental errors in the job analysis process by making it more quantitative and objective. In this respect, it has been shown to have good test-retest reliability (average $r = .78$) over time (90 days) and good reliability between job analysts, supervisors, and incumbents (average $r = .79$).[2]

DETERMINING THE CRITERION-RELATED VALIDITY OF A SINGLE PREDICTOR

In this section, we will present a step-by-step description of the procedures involved in determining the criterion-related validity of any predictor (i.e., any of the methods discussed in the previous chapter).

Step 1: Conduct a job analysis

Step 2: Select predictors

Once the job is analyzed, it is necessary to choose the best possible predictor, or combination of predictors (i.e., tests, application blanks, interviews) to measure the kinds of attributes necessary for success on the job. It is advisable that a properly trained industrial-organizational psychologist or personnel specialist be consulted at this stage. This individual is qualified to develop selection devices that are tailor-made for a particular organization or to skillfully choose among the commercially available tests.

Probably the foremost source of information on tests is the *Mental Measurement Yearbooks* edited by O. K. Buros. Published periodically, these books contain critical reviews and evaluations of more than 1,200 published tests. In addition, test manuals (which can be purchased along with the test itself from test publishers) as well as the research literature provide valuable data on a test's reliability, validity, standardization, and norms.

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[2] Position Analysis Questionnaire materials can be obtained from the Purdue University Bookstore, 360 West State Street, West Lafayette, Indiana 47906.

Step 3: Administer predictor to a sample of individuals

Depending upon the validation approach being followed, predictor information is obtained either from job applicants or present employees. With the predictive (or follow-up) validity approach, tests are administered to applicants at the time of hiring and put away until some later date when criterion data are available. As mentioned in the previous chapter, this is often considered by government agencies to be the preferred method of validation because it directly answers the important question: Is this selection device capable of predicting subsequent behavior on the job? Unfortunately, the predictive approach is not used as often as it should be because of two possible limitations: (1) the time required to wait for criterion data and (2) the requirement that applicants be hired regardless of how poorly they scored on the predictor. In actual practice, this second problem can be partially alleviated by allowing the organization to continue choosing applicants using their current selection system. For instance, a test validation sample might not include certain individuals who were rejected because of the company's selection interview. Although this solution has certain drawbacks, it is a realistic and practical compromise.

In the concurrent (or present-employee) approach, both predictor and criterion data are obtained from present employees at approximately the same time. Although this method yields immediate results, it has certain limitations that one should be aware of:

1. Present employees represent a highly select group, since those who were not satisfactory either left voluntarily or were dismissed. Thus, the predictor-criterion correlation is not representative of the correlation that one would obtain using a sample of applicants. This will often lower the size of the concurrent correlation.
2. Present employees differ from the applicant sample in terms of age, experience, and the motivation to perform well on the predictor. These influences may raise or lower the correlation, with no way of knowing in advance the direction of such influences (Cascio, 1982).
3. Present employees are often reluctant to take experimental tests for fear that their job security may somehow be threatened. This may occur even though the test scores are entirely anonymous, thereby reducing the number of people in the validation study.

It is interesting to note that recent comparisons of predictive and concurrent validity estimates using cognitive ability tests (e.g., intelligence tests) show no statistically significant differences in the size of these correlations (Barrett, Phillips, & Alexander, 1981). This same finding is less likely to occur with tests of personality, interest, aptitude, and job knowledge where a person's learning in the course of doing a job will more likely have a greater impact on how he or she responds to test questions.

Step 4: Obtain criterion measures of employee proficiency

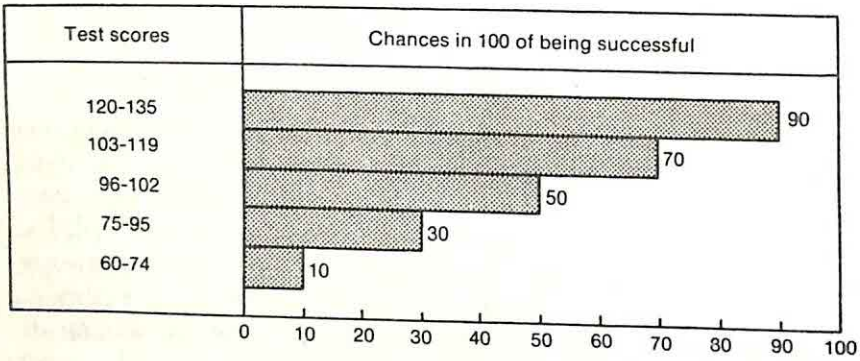
Criterion information is obtained on new or present employees depending upon the approach chosen in the previous step. For most jobs, one criterion measure will not be enough. Instead, there are a number of dimensions on which workers' success can be measured. For example, a tire builder can be evaluated not only in terms of number of tires produced, but also in terms of quality, absenteeism, tardiness, and injuries. Some of these measures will involve subjective judgments from superiors and peers, and others will consist of securing data from company records (e.g., units produced). In either case, the measures chosen for use must be relevant to the job in question, reliable (or consistent), uncontaminated, and practical in terms of cost and acceptability (see Chapter 13).

Step 5: Relate predictor scores to measures of employee proficiency

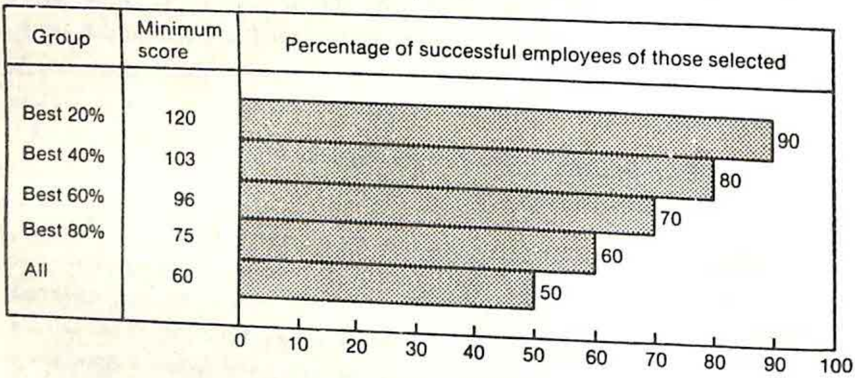
Although the relationship between scores on a predictor and job proficiency may be presented in the form of correlation coefficients, it is understood better by nonstatisticians and lay people when expressed in the form of expectancy charts. These charts present the validity of a predictor graphically and are of two types. The *individual* expectancy chart illustrated in Figure 15–5A permits individual prediction. That is, personnel administrators are able to estimate an individual applicant's probability of being a "successful" employee by knowing his/her score range on the predictor. Of course, what *successful* means must be defined for each job before a chart can be developed. As Figure 15–5A shows, if an applicant scores between 75 and 95 on the predictor, this individual has a 30 percent chance of being successful on the particular job. The *institutional* expectancy chart shown in Figure 15–5B permits the prediction of the average performance of a *group* of applicants. With such a chart, the personnel manager can predict the percentage of successful employees that would be obtained if the minimum predictor score for hiring were set at various cutoff levels. The reader should realize that if a predictor had no validity whatsoever, there would be no systematic trends in the length of the horizontal bars. The procedures for developing expectancy charts are described in Guion (1965) and Lawshe and Balma (1966).

FIGURE 15–5
Individual and institutional expectancy charts

A. An example of an individual expectancy chart



B. An example of an institutional expectancy chart



A more effective procedure for expressing the validity of a predictor is the correlation coefficient. It gives a more precise indication of the extent of relationship between predictor and criterion scores than do expectancy charts. For this reason, correlations are commonly used in test manuals and technical reports. They are employed regardless of whether a predictive or concurrent validation strategy is followed (see Chapter 1). This validity coefficient can vary between $+1.00$ and -1.00. A positive correlation means that an applicant with a high (low) predictor score is likely to have a high (low) criterion score. A negative correlation means that an applicant with a high (low) predictor score is likely to have a low (high) criterion score. When $r = 0.00$, no relationship exists between the predictor and criterion. It is important to note that the *sign* of the r is not important here, but the *size* is. The larger the r, the better the predictions will be. Any analysis should involve information about the statistical significance of the calculated r. Traditionally, a validity coefficient is expected to be significant at the 5 percent level; that is, the probability is less than 1 chance in 20 that the obtained correlation for the sample will be as large as it is if the correlation for the population from which the sample is drawn is actually zero.

Step 6: Examine validity for separate groups

This step involves determining whether there is a statistically significant relationship between the employee scores on the predictor and the criterion for various groups. Where technically feasible, the sample on which the validity study is conducted should be reasonably representative of the population to which the predictor(s) will be used. That is, the validation sample should possess minorities, females, and ethnic group members when they reside in the local labor area. The sample must also be composed of individuals of the same age, work experience, and educational level as the individuals for whom the predictor(s) will eventually be used when hiring. In addition, the Uniform Guidelines on Employee Selection Procedures (1978) recommend that users of "tests" (defined broadly to mean any paper-and-pencil or performance measure used as a basis for making any employment decision) should routinely investigate possible differences in the degree of criterion-related validity between, for example, minority and nonminority groups and male and female groups. These investigations of "differential validity" should be performed only when it is technically feasible to do so; that is, when sample sizes in each group are sufficiently large and when valid, reliable, and unbiased criteria are being used (Cascio, 1982).

With respect to differential validity, the personnel specialist should be on the lookout for the situation wherein the predictor has validity for only the nonminority group. In this case, the predictor should be used for the future hiring of only nonminority applicants, since the subsequent job performance of minorities cannot be accurately predicted. Similarly, a predictor could be found to be valid for selecting males, but not females.

It is important to emphasize that the existence of differential validity is a rarity in well-executed validity studies (Boehm, 1972; Hunter, Schmidt, & Hunter, 1979; Schmitt, Mellon, & Bylenga, 1978). Nevertheless, a check for the possible existence of differential validity should always be made when feasible.

Step 7: Check for test unfairness

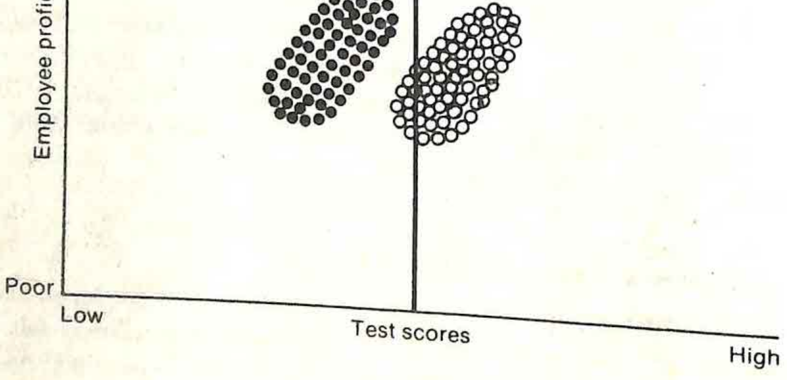
Differential validity and test fairness are independent concepts. Lack of differential validity does not assure that a predictor is being fair to minorities or women. To establish that a predictor is fair, one must

look beyond only the significance of the correlation coefficients. Since the **Uniform** Guidelines call for a check on test unfairness for each race, sex, and ethnic group that constitutes a significant factor in the user's relevant labor area, let us look at this concept of unfairness in some depth.

The clearest statement of test unfairness can be found in the Uniform Guidelines (Sec. 14B): "When members of one race, sex, or ethnic group characteristically obtain lower scores on a selection procedure than members of another group, and the differences in scores are not reflected in differences in a measure of job performance, use of the selection procedure may unfairly deny opportunities to members of the group that obtains the lower scores." Embedded in this definition is the idea that *predictor performance* and *criterion performance* must be taken into account, along with the sizes of the correlations, when checking for the existence of unfairness.

Checks for test unfairness, like differential validity, begin by grouping the sample on the basis of race, sex, or ethnic group membership. A predictor is considered to be unfair for members of a group (e.g., black applicants) if their scores on the predictor underestimate their actual performance on the job compared with another group (e.g., white applicants). Figure 15–6 graphically illustrates this case. Here, if a single cutting score were set for the two groups combined, the black applicants would not be as likely to be selected because they had lower *predictor performance* than whites. This situation is unfair to blacks, since their *criterion performance* is the same as the whites. In this

FIGURE 15–6
An example of unfairness toward black applicants



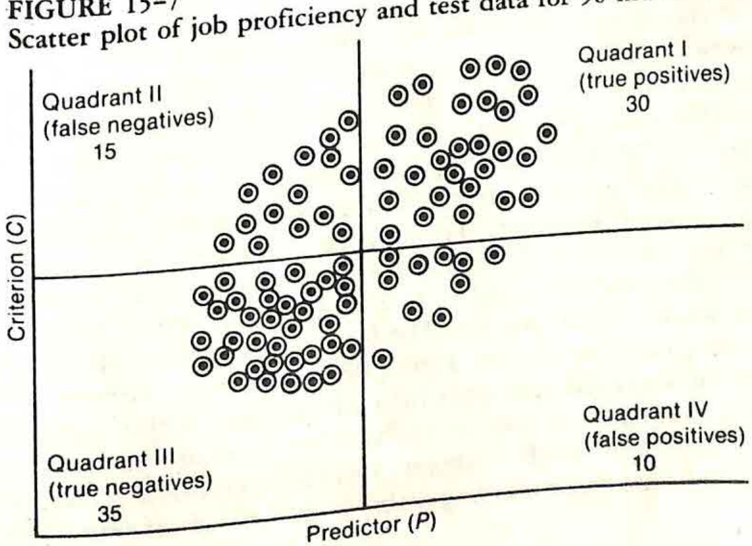
case, the predictor is unfair and the situation must somehow be remedied according to the *Uniform Guidelines*. Thus, the personnel specialist can either revise or replace the predictor with an alternative selection procedure or can continue to use it operationally with appropriate lowering of the cutoff score for the black applicants. Only in this way can one assure compatibility between the probability of successful job performance and the probability of being selected. For more detail on the basic concepts and models of test fairness, the interests reader is referred to Arvey (1979) and Cascio (1982).

Step 8: Determine the utility of the predictor

Up until now, we have been considering only the statistical significance of the predictor. Another important consideration is the practical significance, or utility, of the selection procedure from the organization's point of view. Utility refers to the gain in hiring successful employees using the predictor as opposed to using no selection system or the existing one.

The easiest way to determine the utility of a predictor is to construct a scatter plot of the predictor and criterion scores. Suppose, for example, that 90 applicants had been given a predictor test and followed up until each applicant's job performance could be assessed. Figure 15–7 shows the scatter plot for the 90 individuals. The correlation between the predictor and the criterion variables (i.e., validity coefficient) is +.75. The heavy horizontal line is the point dividing the successful and unsuccessful workers. Those individuals falling below the line

FIGURE 15–7
Scatter plot of job proficiency and test data for 90 individuals



represent job failures, and those above the line are job successes. The heavy vertical line is the cutoff score on the predictor that separates those individuals who will be hired from those who will be rejected. These two heavy lines split the scatter plot into four quadrants:

Quadrant I (true positives)—new employees whom the predictor indicates will do well and who subsequently succeed on the job.
Quadrant II (false negatives)—new employees whom the predictor indicates will do poorly and who subsequently succeed.
Quadrant III (true negatives)—new employees whom the predictor indicates will do poorly and who subsequently do not succeed.
Quadrant IV (false positives)—new employees whom the predictor indicates will do well and who subsequently do not succeed.

To estimate utility, the concept of base rate must be introduced. It refers to the proportion of the applicants who succeed on the job if the predictor is not used to select them. It is estimated by determining the ratio of persons found in the following quadrants:

$$\text{Base rate} = \frac{\text{I} + \text{II}}{\text{I} + \text{II} + \text{III} + \text{IV}}$$

(the base rate in our sample equals 45/90 = 50%)

The utility or gain in the percentage of successful employees over and above the base rate can be determined by the following formula:

$$\text{Utility} = \underbrace{\frac{\text{I}}{\text{I} + \text{IV}}}_{\substack{\text{(percentage}\\ \text{of successful}\\ \text{workers hired}\\ \text{using predictor)}}} - \underbrace{\frac{\text{I} + \text{II}}{\text{I} + \text{II} + \text{III} + \text{IV}}}_{\text{(base rate)}}$$

(the percentage improvement in our example is 75% − 50% = 25%)

Several factors determine the functional utility of any predictor. Among them are: (1) the magnitude of the validity coefficient, (2) the selection ratio, and (3) the percentage of present employees who are successful (i.e., base rate). The nearer the validity coefficient is to either +1.00 or −1.00, the better the utility of the predictor. The *selection ratio* refers to the number of job openings divided by the number of job applicants. For instance, if one tests 80 job applicants and hires the top 20 among them, the selection ratio would be 20/80 = 25 percent. If one had to hire all applicants tested, the selection ratio would be 100 percent. The lower the selection ratio, the more favorable the labor market is from the organization's viewpoint, since there are more job applicants than job openings. Other things being equal, predictors increase in utility when there are more acceptable applicants from which to choose; that is, when the selection ratio is low. The final factor affecting utility is the *base rate*. If everything else is equal, the closer the base rate is to 50 percent, the more utility the predictor will have. As the base rate becomes more extreme (e.g., 10 percent or 90 percent), the value of the predictor decreases. In other words, it is more difficult for a predictor to bring about an improvement in the caliber of the work force when the current group of employees are either extremely satisfactory or unsatisfactory.

Taylor-Russell tables (1939) provide a method of determining the gain in the percentage of satisfactory employees hired by considering the validity coefficient, the selection ratio, and the base rate. For illustrative purposes, one of their ten tables is presented in Table 15–1. Suppose you had a predictor with an $r = +.70$, you had five times as many applicants as there were openings, and only 20 percent of your present employees on the job in question are considered satisfactory. By referring to the table, you find that under these conditions you can expect that 56 percent of the applicants placed would be satisfactory instead of merely 20 percent. In summary, the Taylor-Russell tables

TABLE 15–1
An example of a Taylor-Russell table

	Proportion of Employees Considered Satisfactory = .20										
	Selection Ratio										
r	*.05*	*.10*	*.20*	*.30*	*.40*	*.50*	*.60*	*.70*	*.80*	*.90*	*.95*
.00	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20	.20
.05	.23	.23	.22	.22	.21	.21	.21	.21	.20	.20	.20
.10	.26	.25	.24	.23	.23	.22	.22	.21	.21	.21	.20
.15	.30	.28	.26	.25	.24	.23	.23	.22	.21	.21	.20
.20	.33	.31	.28	.27	.26	.25	.24	.23	.22	.21	.21
.25	.37	.34	.31	.29	.27	.26	.24	.23	.22	.21	.21
.30	.41	.37	.33	.30	.28	.27	.25	.24	.23	.21	.21
.35	.45	.41	.36	.32	.30	.28	.26	.24	.23	.22	.21
.40	.49	.44	.38	.34	.31	.29	.27	.25	.23	.22	.21
.45	.54	.48	.41	.36	.33	.30	.28	.26	.24	.22	.21
.50	.59	.52	.44	.38	.35	.31	.29	.26	.24	.22	.21
.55	.63	.56	.47	.41	.36	.32	.29	.27	.24	.22	.21
.60	.68	.60	.50	.43	.38	.34	.30	.27	.24	.22	.21
.65	.73	.64	.53	.45	.39	.35	.31	.27	.25	.22	.21
.70	.79	.69	.56	.48	.41	.36	.31	.28	.25	.22	.21
.75	.84	.74	.60	.50	.43	.37	.32	.28	.25	.22	.21
.80	.89	.79	.64	.53	.45	.38	.33	.28	.25	.22	.21
.85	.94	.85	.69	.56	.47	.39	.33	.28	.25	.22	.21
.90	.98	.91	.75	.60	.48	.40	.33	.29	.25	.22	.21
.95	1.00	.97	.82	.64	.50	.40	.33	.29	.25	.22	.21
1.00	1.00	1.00	1.00	.67	.50	.40	.33	.29	.25	.22	.21

Source: H. C. Taylor and J. J. Russell, The Relationship of Validity Coefficients to the Practical Effectiveness of Tests in Selection: Discussion and Tables, *Journal of Applied Psychology* 23 (1939), pp. 565–78.

indicate the increase in percentage successful in the selected group by using data on validity, base rate, and selection ratio. For instance, in the above example, 56 percent of the applicants placed will be satisfactory instead of only 20 percent. Although this is interesting information, one might still want to know *how much more successful* will this selected group be in *dollar terms*. Recently, Schmidt, Hunter, McKenzie, and Muldrow (1979) developed a method of computing dollar gains that takes into account such factors as the number of applicants to be hired, cost of testing one applicant, variability of job performance in dollars, validity, and selection ratio.

Step 9: Reevaluate

It is important to remember that the predictive situation is a dynamic one. Jobs change, applicant populations change, organizations change, employment conditions change, and criteria change over time. What is a valid predictor today might be outdated tomorrow. Thus, it is important that the criterion-related validity of a predictor be reevaluated periodically to make certain that it still exists. The check on the validity of any measure or set of measures used for prediction is called *cross-validation*. Cross-validation involves determining statistically whether criterion-related validity obtained in one sample holds up in another sample of people independently drawn from the same population. Thus, industrial/organizational psychologists hope that there is very little shrinkage in the size of the cross-validated correlation coefficient compared with its size in the initial validation sample. Shrinkage can usually be minimized when the initial validation sample is large, and when the predictors chosen for use are limited to a reasonable number and are based on hypotheses derived from psychological theory or previous experience in predicting the criterion (Anastasi, 1982).

Step 10: Generalize validity

Is it necessary to revalidate a predictor again and again in each new job situation, or is it permissible to generalize validity from one situation to another? According to the Uniform Guidelines, validity may be generalized across situations when "the incumbents in the user's job and the incumbents in the job or group of jobs on which the validity study was conducted perform substantially the same major work behaviors, as shown by appropriate job analyses both on the job or group of jobs on which the validity study was performed and on the job for which the selection procedure is to be used" (Section 7B). This statement indicates that a personnel specialist may generalize validity findings to other jobs as long as it can be shown that these other jobs are basically the same as the job on which the prior validity study was conducted.

Recent research findings suggest that validity generalizes quite well across job situations (Pearlman, Schmidt, & Hunter, 1980; Schmidt, Hunter, Pearlman, & Shane, 1979). This research suggest that validity differences observed in the past between jobs were often due to such artifactual factors as differences between studies in predictor reliability, criterion reliability, and sample sizes. These findings are encouraging, since they suggest that industrial-organizational psychologists need not always carry out new validation studies if they can document that the new situation involves the same test and job as used in previous studies.

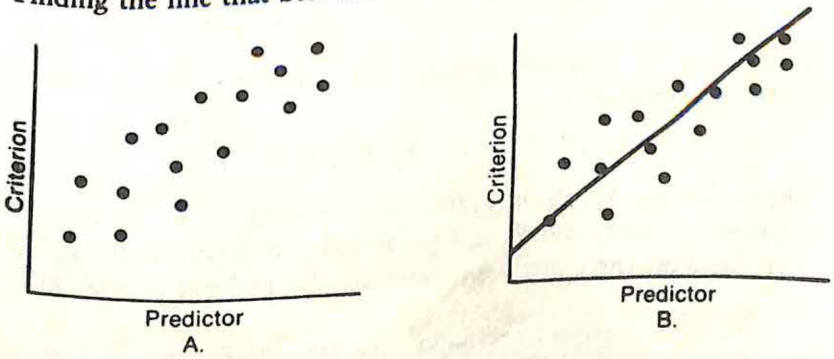
MAKING SELECTION DECISIONS WITH A SINGLE PREDICTOR

Once we determine that the predictor's validity is both statistically and practically significant, we can use it for selection purposes by developing a prediction or regression equation. This regression equation is formulated using the predictor and criterion data from our validation sample. To illustrate the general procedure for developing this equation, consider the scatter plot in Figure 15–8A. In order to describe the relationship between the predictor and criterion scores in this scatter plot, we mathematically find the line that best "fits" these data; that is, the line that slips in best among the set of data points (see Figure 15–8B). In most cases, this line will be a straight one in the form of the following equation:

$$C' = a + bP_1$$

where a and b are statistical weights differing in each selection situation, P_1 is a single predictor score, and C' is a predicted criterion score.

FIGURE 15–8
Finding the line that best fits this scatter diagram



Why do we need this prediction equation if we already know the predictor and criterion scores of everyone in our validation sample? The answer is that we use the validation data to develop our prediction equation, which is then used for selecting among future applicants on whom we have no job performance data. In fact, each applicant's job performance is precisely what we are attempting to predict before hiring. For instance, suppose our prediction equation is

$$C' = 8 + 3P_1$$

If one applicant scores 30 on the predictor, her predicted criterion score will be 98 or [8 + 3(30)]. Another applicant with a predictor score of 45 would have a C' score of 143 or [8 + 3(45)]. The final choice among all applicants will depend upon the particular cutoff score chosen by the organization.

MAKING SELECTION DECISIONS WITH MULTIPLE PREDICTORS

Rarely can job success be accurately predicted using only one predictor score. Even the most simple jobs require several abilities. For this reason, most selection situations require the combining of several predictors (e.g., tests, interviews, application blanks) into a test battery. There are three main methods for combining predictive information: (1) multiple regression, (2) multiple cutoff, and (3) combining by judgment.

The multiple regression method usually involves assigning different weights to the predictors. These weights are derived by means of a fairly complicated statistical procedure, which need not concern us here.[3] The prediction equations shown below would result if either two, three, or four predictors were used. The a and bs in these equations are statistical weights, Ps are predictors, and C' is a predicted criterion score.

2 predictors: $C' = a + b_1P_1 + b_2P_2$
3 predictors: $C' = a + b_1P_1 + b_2P_2 + b_3P_3$
4 predictors: $C' = a + b_1P_1 + b_2P_2 + b_3P_3 + b_4P_4$

Let us look at some concrete examples. Suppose that our multiple regression equation is

$$C' = 2 + 3P_1 + 2P_2 + 4P_3$$

where, let us say P_1 is a structured interview, P_2 is a weighted application blank, and P_3 is a paper-and-pencil test. If an applicant's score on these three predictors were 10, 20, and 15, respectively, this individual's C' score would be 132 or $[2 + 3(10) + 2(20) + 4(15)]$. It is quite possible for another applicant to have an identical C' score even though his test score pattern differs substantially from the first person $[\text{e.g.}, 2 + 3(20) + 2(5) + 4(15)]$. These two applicants exemplify one of the major characteristics of multiple regression: it is possible for a high score on one predictor to compensate for a low score on another. If a C' score of 130 had been established as the cutoff score for hiring, both individuals would have been selected regardless of their individual test score patterns.

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[3] The reader is referred to Ghiselli, Campbell, and Zedeck (1981) for a more detailed discussion of the procedures for determining prediction equations.

The multiple cutoff method is a noncompensatory approach. That is, each predictor in the test battery has its own cutoff score; an applicant who does not reach the cutoff score on every single predictor will not be hired. Performing exceptionally well on one predictor (e.g., visual acuity) will not compensate for unsatisfactory performance on another (e.g., manual dexterity). This method typically involves a multiple hurdle or "survival of the fittest" strategy. Applicants are evaluated using one test at a time with certain low-scoring applicants eliminated from consideration along the way.

Probably the most widely used method of combining predictive data entails some sort of composite judgment on the part of a psychologist, a manager, or a personnel administrator. Typically, the individual pools together all the information available about an applicant, combines this information in her/his own unique way, and then makes a final subjective judgment about whether or not to hire the applicant.

What can we say about the relative advantages of these three approaches? First, research has shown that it is better to combine predictive data statistically or mechanically rather than judgmentally (Meehl, 1954, 1965; Sawyer, 1966). Second, it has been shown that sophisticated weightings of predictors using multiple regression analysis seldom yield higher validities than simply weighting the individual predictor scores equally (i.e., giving each a weight of 1.0). In fact, it has been shown that when the ratio of employees to predictors is below a critical sample size, the use of multiple regression weights instead of unit weights can result in a *loss* of validity (Schmidt, 1971). Third, the multiple cutoff approach is a stringent selection paradigm. It should be used only when there is a low selection ratio and when a job analysis reveals that compensation is clearly inappropriate. For example, visual acuity, auditory acuity, manual dexterity, and technical knowledge are *all* needed for airplane pilot success. High tech knowledge cannot compensate for poor visual acuity!

CONTENT VALIDITY

The content validity of a test or other predictor measure is the degree to which scores on it may be regarded as a representative sample of a specified content domain. If a test is to be used for selection purposes, the content domain should be defined in terms of the skills, knowledge, or behaviors required to perform the job. This content domain is determined by a careful and detailed job analysis. Unlike criterion-related validity, content validity is not generally measured correlationally but rather is based on the judgments of persons highly familiar with the particular job (e.g., job incumbents and supervisors). These individuals determine whether the test items are an adequate sample of all the major aspects of the job in question. One method of assuring that a test possesses content validity is to use a content evaluation panel (Lawshe, 1975). The panel members, half of whom are supervisors and half incumbents, independently judge whether the skills and/or knowledge measured by each test item is essential, useful but not essential, or not necessary to perform the job adequately. A *content validity ratio* is then determined for each item as follows:

$$\text{Content validity ratio} = \frac{n_e - N/2}{N/2}$$

where

n_e = the number of panelists indicating that a test item is "essential."

N = the total number of panelists.

Test items are eliminated if their content validity ratio fails to reach statistical significance. The average content validity ratio of all the test's items yields the *content validity index* for the entire test. The index reflects the extent of overlap between the test items and the job domain as judged by "experts" (i.e., individuals highly familiar with the job's content).

Although content validity is relevant to the construction of all kinds of tests, it is commonly used in evaluating achievement or trade tests (tests designed to measure how well a person has mastered a particular skill or content area) rather than aptitude or personality tests. For instance, one of the authors recently constructed a maintenance mechanic test consisting of the following parts: (1) a 20-minute blueprint-reading test in which the examinee filled in the correct dimensions in each of 38 positions on a mechanical drawing; (2) a 55-minute multiple-choice test consisting of questions that measure knowledge of the trade; and (3) a 45-minute physical test requiring the examinee to assemble a gear reducer. The test is currently being used to select experienced mechanics requiring no training.

With increasing frequency, personnel specialists are turning to the concept of content validity to document the job-relatedness of their selection devices. One reason for this is that the courts have increasingly recognized content validity as an equally acceptable validation strategy, and not just a weak substitute for criterion-related validity. Further, content validity serves as a viable validation strategy in all those situations in which criterion-related validity studies are not technically feasible. Finally, content validity appears to be well accepted by applicants and by organizations, since the skills, knowledge, and behaviors needed to perform the job are directly measured—rather than such abstract psychological constructs as deductive reasoning ability, resistance to premature judgment, and flexibility of closure (Arvey, 1979).

Content validity should not be confused with face validity. Face validity is not really validity; it refers simply to how appropriate the test content appears to the examinee tested and to company officials. It is a desirable feature of tests in that it affects the examinee's motivation to do well and the organization's acceptance of the test results. Imagine, for instance, how ridiculous it would be for managers to be taking a test of quantitative ability where the questions are expressed in terms of apples or oranges rather than in terms of relevant managerial problems. Important as face validity is, it is not an essential characteristic for a test to possess before it can be used as a predictor.

PLACEMENT OF PERSONNEL

Up until now, we have devoted our attention to the problem of selection. In personnel selection the concern is with accepting or rejecting applicants for a specific job. For example, it may be that we have 10 openings for salespeople and 32 applicants. The task is to determine which, if any, of these individuals should be hired. The problem of placement or classification is considerably more complex. It involves individuals who have already been selected by the organization. The objective is to place each individual on that job where he or she will be most effective. As an illustration, an organization may have 20 different kinds of job openings and 20 people who have been hired after passing some initial screening. The question now becomes which of the 20 jobs each individual should be placed in. It should be obvious that one's opportunity to use a placement strategy as opposed to a selection strategy depends upon the size of the organization and the diversity of jobs available for applicant assignment (Dunnette, 1966).

There are several alternative methods of performing personnel placement. One method involves setting up regression equations, which can predict an applicant's success on each of the job openings available. Our decision would then be to place individuals on that job for which each has the highest predicted criterion score. An alternative approach might involve placing an applicant on the job in which he/she is most similar to currently successful workers. Specifically, we can use a technique called profile analysis to compare an applicant's pattern of predictor scores (e.g., biographical data and test scores) with the average pattern of predictor scores for successful employees in each job. It is important to note that sometimes these approaches can get quite complicated and should only be instituted after cost/benefit analyses are performed.

What are some of the benefits of using a system of differential placement? First, the organization can save in recruiting costs, since applicants who might otherwise be denied employment are placed somewhere. Second, since people are considered for more than one job, the selection ratio becomes more favorable. This increases the utility of the overall selection program. Finally, it fits in nicely with an organization's desire to hire all minority group members whom they may have taken the effort to recruit.

EQUAL EMPLOYMENT OPPORTUNITY

Prior to 1964 there were essentially no restrictions placed on employers regarding their hiring practices. Title VII of the Civil Rights Act of 1964 dramatically changed all that. This act, as amended in 1972, prohibits discrimination in hiring and treatment during employment on the basis of race, color, religion, sex, and national origin by an organization employing 15 or more employees 20 weeks per year. The only organizations exempt from this law are private clubs paying no income tax and religious groups hiring individuals of their own faith. To enforce this act, the Equal Employment Opportunity Commission (EEOC) was established. When it receives a charge that an alleged violation has occurred, it has the legal power to: (1) subpoena and question witnesses under oath; (2) recommend a conciliation between a complainant and an organization; and (3) contact another federal agency, the Office of Federal Contract Compliance Programs (OFCCP), is a federal contractor or subcontractor is involved. Although the EEOC does not have the power to order an organization to stop an employment practice it considers discriminatory, the agency has direct access to the courts to present evidence of alleged discrimination. It can also require organizations to maintain records regarding the race (i.e., blacks, American Indians, Hispanics, Asians, and whites), sex, religion, and national origin of all applicants and employees (Latham & Wexley, 1981).

The OFCCP, a part of the U.S. Department of Labor's Employment Standards Administration, has the responsibility of monitoring the employment practices of more than 30,000 prime contractors and thousands more subcontractors who provide the U.S. government with supplies, services, use of property, and construction work equaling about $81 billion each year (U.S. Department of Labor, 1979). Specifically, the OFCCP is concerned with discrimination in such areas as hiring, upgrading, transfers, and layoffs by any employer who holds a federal contract of $10,000 or more. It is built upon three separate pieces of legislation, all requiring equal employment opportunity and affirmative action:

1. *Executive Order 11246* This order, issued by President Lyndon Johnson in 1965, prohibits federal contractors and subcontractors from employment discrimination based on race, color, sex, religion, or national origin. The order also requires that employers take affirmative action to hire and promote underrepresented groups of people.

2. *Vocational Rehabilitation Act of 1973* This act requires employers with federal contracts or subcontracts of more than $2,500 to provide equal job opportunity and affirmative action for qualified handicapped people. Handicapping conditions cover a wide range of physical (e.g., heart disease, high blood pressure, diabetes, cancer) and mental (e.g., mental retardation, specific learning disabilities, previous emotional breakdown) disabilities. Sometimes, too, people are seen as having handicaps, when in reality they do not. One example is facial disfigurement, which causes no disability for many jobs, but which others might regard as an impairment.

3. *The Vietnam-Era Veterans Readjustment Act of 1974* This law requires that employers with federal contracts or subcontracts of $10,000 or more provide equal employment opportunity and take affirmative action regarding Vietnam-era veterans and disabled veterans of all wars.

Both the EEOC and the OFCCP have issued guidelines on proper selection procedures. Specifically, in 1978 the EEOC, in collaboration with three other federal agencies (i.e., Civil Service Commission, Department of Labor, Department of Justice) issued the Uniform Guidelines on Employee Selection Procedures (commonly referred to as the Uniform Guidelines). The OFCCP's guidelines (Compliance Responsibility for Equal Employment Opportunity) was also published in the Federal Register in 1978.[4] Listed below are 19 of the most common questions asked about these guidelines and fair employment practices in general.[5]

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[4] See *Federal Register,* vol. 43, no. 166, August 25, 1978, for the Uniform Guidelines on Employee Selection Procedures and vol. 43, no. 204, October 20, 1978, for the OFCCP guidelines.

[5] Most of this section is based on questions and answers published in the *Federal Register,* vol. 44, no. 43, March 2, 1979.

1. Q. What is the basic principle of the Uniform Guidelines?
   A. A selection procedure that has an adverse impact on the employment opportunities of members of a race, color, religion, sex, or national origin group (referred to as "race, sex, and ethnic group") and that disproportionately screens them out is unlawfully discriminatory unless either the selection procedure has been validated in accord with the guidelines or the employer can justify the procedure as a business necessity (i.e., needed for the safe and efficient operation of a business).
2. Q. Who is covered by the Uniform Guidelines?
   A. The guidelines apply to private and public employers, labor organizations, employment agencies, apprenticeship committees, licensing and certification boards, contractors and subcontractors, as well as local, state, and federal governments.
3. Q. What personnel practices are covered by the Uniform Guidelines?
   A. The Uniform Guidelines cover any kind of employment decisions—such as hiring, retention, promotion, transfer, demotion, dismissal, and referral.
4. Q. What is meant by *adverse impact?*
   A. The answer to this question is a complex one because the answer differs depending upon whether one is following the Uniform Guidelines or the OFCCP guidelines. According to the Uniform Guidelines, adverse impact is a substantially different rate of selection in hiring, promotion, or other employment decisions that operates to the disadvantage of a member of a race, sex, or ethnic group. To use in determining what they will consider to be a substantially different rate of selection, the four federal agencies have adopted a rule of thumb that has come to be known as the "four-fifths" or "80 percent" rule. Although this rule of thumb is not intended as a legal definition of discrimination, it is a practical way for the enforcement agencies to keep their attention on serious discrepancies in rates of hiring, promotion, and other selection decisions. Let us look at how the four-fifths rule would be applied.

   Suppose, for example, that the hiring rate for whites is 70 percent; for American Indians, 50 percent; for Hispanics, 45 percent; and for blacks, 60 percent. Suppose, too, that each of these groups constitutes more than 2 percent of the labor force in the local relevant labor area. A comparison needs to be made of the hiring rate of each group with that of the highest group (whites). These comparisons yield the following adverse-impact ratios: American Indians = 50/70, or 71 percent; Hispanics = 45/70 or 64 percent; and blacks = 60/70, or 86 percent. Applying the four-fifths rule of thumb, on the basis of the above information alone, adverse impact is indicated for American Indians and Hispanics, but not for blacks.

5. Q. What is adverse impact according to the OFCCP?

A. All contractors and subcontractors who have 50 or more employees and have $50,000 or more in government business must prepare and implement a written affirmative action program each year. An acceptable affirmative action plan must include an analysis of areas in which the contractor is deficient in the utilization of women and minorities; it must also include "goals and timetables" to which the contractor's good faith efforts must be directed to correct the deficiencies.

The first step in establishing goals and timetables is job grouping. The OFCCP says that similar jobs should be grouped into categories (e.g., officials and managers, professionals, technicians, sales, office and clerical, craftsmen, operatives, laborers, service workers). Second, it becomes necessary to compare the percentage of women and minorities in each of these job groups with the percentage available to the employer. Figure 15–9 shows the factors that the OFCCP directs employers to consider when determining whether there's an underutilization of women or minorities in its work force. Although the OFCCP regulations describe what factors are to be considered, they do not specify the weight to be given to each factor. Here, the contractor or subcontractor is allowed a certain amount of discretion. The figures used for each of these factors will depend upon the contractor's or subcontractor's relevant hiring area. Thus, if, as a result of consideration of the eight factors for either females or minorities, the contractor or subcontractor acknowledges an availability of 35 percent females or minorities for a particular job group, then the employer must have 35 percent. If it does not, it must acknowledge this underutilization and set an ultimate goal of 35 percent females and minorities (McCulloch, 1981).

6. Q. What is "validation" according to the Uniform Guidelines and OFCCP guidelines?

FIGURE 15-9
Factors used by the OFCCP in determining underutilization of females and minorities

Females	*Minorities*
(i) The size of the female unemployment force in the labor area surrounding the facility.	(i) The minority population of the labor area surrounding the facility.
(ii) The percentage of the female workforce as compared with the total workforce in the immediate labor area.	(ii) The size of the minority unemployment force in the labor area surrounding the facility.
(iii) The general availability of women having requisite skills in the immediate labor area.	(iii) The percentage of the minority work force as compared with the total work force in the immediate labor area.
(iv) The availability of women having requisite skills in an area in which the contractor can reasonably recruit.	(iv) The general availability of minorities having requisite skills in the immediate labor area.
(v) The availability of women seeking employment in the labor or recruitment area of the contractor.	(v) The availability of minorities having requisite skills in an area in which the contractor can reasonably recruit.
(vi) The availability of promotable and transferable female employees within the contractor's organization.	(vi) The availability of promotable and transferable minorities within the contractor's organization.
(vii) The existence of training institutions capable of training persons in the requisite skills.	(vii) The existence of training institutions capable of training persons in the requisite skills.
(viii) The degree of training which the contractor is reasonably able to undertake as a means of making all job classes available to women.	(viii) The degree of training which the contractor is reasonably able to undertake as a means of making all job classes available to minorities.

A. Validation is the demonstration of the job-relatedness of a selection procedure. Three different types of validation strategies are recognized as being acceptable:

Criterion-related validity—a statistical demonstration of a relationship between scores on a selection procedure and job performance of a sample of workers.

Content validity—a demonstration that the content of a selection procedure is representative of important aspects of performance on the job.

Construct validity—a demonstration that a selection procedure measures a construct (some underlying human trait or characteristic, such as honesty or creativity) and that this construct is important for success on the job.

7. Q. How does the employer choose which validation strategy to use?

   A. This depends upon the type of selection procedure, the job, and the employment situation. Generally, a criterion-related study, particularly a predictive one, is often regarded as the closest to the ideal. Therefore, it should be used whenever it is technically feasible to do so (e.g., the number of employees available for the study is large enough). Content validity is appropriate where one has developed tests that measure the skills, knowledges, or abilities necessary for performing the work behaviors (e.g., a typing test for secretaries, blueprint-reading test for mechanics, safety knowledge test for flight attendants). The use of construct validity is newer and less developed than criterion-related or content validity strategies. It should therefore be used cautiously until further research is conducted.

8. Q. What kind of selection devices need to be validated according to the guidelines?

   A. All formal, scored, quantified, or standardized techniques of assessing job suitability. This includes paper-and-pencil tests, interviews, special educational or work history requirements, biographical information blanks, application blanks, personal history and background requirements.

9. Q. How can users justify continued use of a procedure on a basis other than validity?

   A. Normally, selection procedures that have an adverse impact can only be justified on the basis of a professionally conducted validation study. Justification of a procedure other than validity has not been addressed by the guidelines. However, the Supreme Court in *Griggs* v. *Duke Power* (1971) indicated that even though the burden on the employer is a heavy one, a selection procedure can be used if there is a "business necessity" for its continued use. That is, it must be shown that whatever the selection procedure measures is a factor directly related to the safe and efficient operation of the business.

10. Q. Do the Uniform Guidelines call for an employer to consider and investigate alternative selection procedures when conducting a validity study?

    A. Yes. The guidelines call for an employer, when conducting a validity study, to make a reasonable effort to become aware of suitable alternative selection procedures and methods of use that have as little impact as possible and to use those that are suitable.

11. Q. What should be done if a selection procedure is unfair

toward one or more groups in the relevant labor area and is therefore having an adverse impact?

A. The Uniform Guidelines provide three options. First, the selection instrument may be replaced with another validated instrument that is fair to all groups. Second, the selection instrument may be revised to eliminate the sources of unfairness (e.g., test items can be revised or deleted). Finally, revisions may be made in the way the selection instrument is being used. For example, cutoff scores may be lowered for minority groups to ensure that their probability of being selected is compatible with their probability of successful job performance.

12. Q. Are state employment service tests validated and permissible to use?

A. The tests are validated, but there is no guarantee that their validity evidence is relevant enough for an organization's particular situation. The mere assertion from a state employment service representative that their tests are validated is not enough. Personnel administrators and managers should check with their compliance officers or with a qualified personnel specialist.

13. Q. Are there any formal requirements imposed by the guidelines as to who is qualified to perform a validity study?

A. No. A validity study is judged on its own merit and may be performed by any person trained to do validation research.

14. Q. If I decide to discontinue all paper-and-pencil testing and other formally scored devices, how will "other selection devices" be evaluated?

A. If there is adverse impact, the employer must either provide the same validation evidence as would be required for paper-and-pencil tests, or modify selection practices to eliminate this condition.

15. Q. What about age discrimination?

A. In 1967 the federal Age Discrimination in Employment Act was passed. It protects people ages 40 to 65 against discrimination in hiring, wages, and discharging. This act was amended in 1978 to raise the upper limit to 70. Further, this amendment eliminated mandatory retirement of federal workers. The act does allow employers to use age as a basis for making employment decisions if age qualifies as a "bona fide occupational qualification" (Arvey, 1979). For example, actors and actresses may be discharged from playing a youthful role if they no longer appear to be the required age.

16. Q. What is the Equal Pay Act?

A. This act was approved in 1963 as an amendment to the 1938 Fair Labor Standards Act. It applies to most workers in both the private and public sectors, including exempt people (e.g., executives, administrators, professionals, salespeople). It does not apply to a few categories of employees who are excluded from minimum wage and overtime requirements of the Fair Labor Standards Act (such as those working in small retail and service establishments). The act holds that men and women performing work in the same company must receive the same pay if their jobs require equal skill, effort, responsibility, and working conditions. Court litigation (*Schultz* v. *Wheaton Glass Co.*, 1970) has upheld the reasoning that *equal* does not mean identical; equal means "substantially similar" duties and responsibilities. The Equal Pay Act is administered by the Equal Employment Opportunity Commission. Organizations are required to remedy their pay inequities by raising the wage rates of females rather than reducing the rates of males. Further, labor organizations are prohibited from causing or attempting to cause employers to violate the act.

The Equal Pay Act prohibits sex discrimination in pay, except in those special cases in which wages are based on a seniority system (i.e., males happen to have more seniority and therefore receive higher wages), a merit system (i.e., males get higher salaries because they happen to do a better job), a system based on quantity and quality of production (i.e., males earn more than females on a piecework basis or get more commission due to more sales volume), or a difference based on something other than sex. For example, a clothing store might have a higher profit margin and earn more money from the sale of men's clothes than women's clothes. It may therefore pay male salespeople servicing the men's department more than women servicing the women's department.

17. Q. What is meant by "comparable worth"?

A. Cases involving pay differential may be filed under the Equal Pay Act or Title VII of the Civil Rights Act of 1964, appealing to the Bennett Amendment. Recently, a controversy has been taking place as to whether the Bennett Amendment requires the jobs in question to be equal in skill, effort, responsibility, and working conditions (as specified in the Equal Pay Act). In a recent Supreme Court decision, *County of Washington* v. *Gunther* (1981), the court ruling implied that the Bennett Amendment did *not* require the two jobs to be the same. As a consequence of this important case, the notion of "comparable worth" has emerged. Comparable worth involves the comparison of worth of two *different* jobs in terms of their worth to the organization. For instance, in *Lemons* v. *City of Denver* (1980), female nurses compared their worth to male plumbers who were making considerably more money. In *Christensen* v. *State of Iowa* (1977), female clerical workers compared their worth to physical plant workers.

18. Q. Is Title VII the only way that an individual can challenge an organization's employment procedures?

A. No. Individuals may challenge an organization's procedures by invoking the 5th and 14th Amendments to the Constitution. Under the "Equal Protection" clause of the 14th Amendment, no state may deny an individual equal protection under the law. The Fifth Amendment applies to the federal government and also imposes an equal-protection restriction (Arvey, 1979). Unlike Title VII, which requires the individual to first prove that adverse impact exists, one is not required to prove this when a case has been filed as a Constitutional violation.

19. Q. Whom can individuals contact if they believe that they have in some way been discriminated against?

A. They can contact either an EEOC or OFCCP regional office, or their state Civil Rights Commission.

EQUAL EMPLOYMENT OPPORTUNITY COURT CASES

Most equal employment opportunity court cases have been heard within the federal, as opposed to the state, court system. Within the federal judicial system there are 92 district courts across the 50 states and the District of Columbia. District courts have no juries. Instead, appointed federal judges write the decisions. Eleven U.S. Courts of Appeal, each consisting of three judges, hear appeals regarding some decisions made within the district courts. The highest appeals court is the U.S. Supreme Court, which considers only a limited number of cases that are considered particularly important. The Court's final decision is based upon a majority vote of the nine-member body.

Eight landmark cases that explicate the proper role and use of tests have reached the U.S. Supreme Court. In the case of *Griggs* v. *Duke Power Company* (1971), the Court ruled that it was illegal for Duke Power to require black laborers to have a high school diploma and to pass two tests as a condition for promotion since these three "tests" were not shown to be job related (i.e., valid) in this particular organizational situation. The Court also ruled that once adverse impact is established, the burden of proof shifts to the organization to demonstrate that the selection practice is, in fact, valid. In *Moody* v. *Albemarle Paper Company* (1975),

> [T]he Court ruled that compensatory back pay awards be made to minorities or women denied jobs or promotions. The Court called for "great deference" to the 1970 EEOC Guidelines, attacking Albemarle's validity study on several points, including: (1) no job analysis was done; (2) the criteria used were subjective supervisory rankings based on vague standards; (3) no subgroup validation was done, nor was one shown to be infeasible; and (4) the validation involved only experienced whites in a concurrent or present-employee approach.

In 1976 the Supreme Court heard the case of *Washington* v. *Davis*, which involved a metropolitan police department that used a verbal-ability test for selecting police recruits. From 1968 to 1971, 57 percent of black applicants failed this test, compared with 13 percent of white applicants. It was claimed that this test was illegal under the Due Process Clause of the Fifth Amendment of the Constitution. The Court ruled that because this case was filed under a Constitutional Amendment rather than Title VII, there was a need for the complainants to demonstrate *purposeful* or *intentional* discrimination. This is different from Title VII cases, wherein statistical evidence of adverse impact is enough to establish a prima facie case (i.e., a body of facts presumed to be true until proven otherwise) of discrimination. This decision represented a departure from the Court's previous acceptance of Title VII standards on cases filed under Constitutional law. The implication of this decision is that when tests are properly validated (as was this verbal-ability test), the Court requires that complainants meet a more stringent requirement of proving discrimination in Constitutional cases. For employers using tests, this decision gave them hope that testing practices could be defended. For complainants, this decision made it more difficult to establish a prima facie case of discrimination.

In the 1977 case of *Dothard* v. *Rawlinson*, a female was refused employment as a correctional counselor trainee because she had not met the minimum height and weight requirements established by an Alabama statute. The height and weight requirements were shown to have an adverse impact on the hiring of women. The defendants argued that the height and weight requirements were job related because they were related to strength, which the defendants claimed was needed for performing the job. The Supreme Court decided that if strength were the real requirement, then a strength test should have been validated and used. This case is particularly significant because it showed that if physical requirements are used and have an adverse impact, they too must be shown to be valid. The case also reassured civil rights advocates that the Supreme Court does not always require proof of intentional discrimination as it did in the case of *Washington* v. *Davis*. The more recent *Dothard* v. *Rawlinson* case showed that the consequences may be sufficient without proving intent (Arvey, 1979).

In 1979 the confidentiality of individual test scores was considered by the Supreme Court. The Court upheld the right of the Detroit Edison Company to refuse to hand over to a labor union copies of aptitude tests taken by job applicants and to refuse to make public an individual's test scores without the prior written consent of the individual involved. This case is significant because it upheld the confidentiality of individual test scores (Cascio, 1982).

The next two Supreme Court cases, *Regents of the University of California* v. *Bakke* (1978) and *Kaiser Aluminum & Chemical Company and United Steelworkers of America* v. *Weber* (1979), concern themselves with the volatile issue of "reverse discrimination." One likely outcome of affirmative action programs designed to help women and minorities gain employment is that they may discriminate against the white male. In the *Bakke* case, the University of California Medical School at Davis established a special admissions program for economically disadvantaged applicants who were members of racial minority groups. Specifically, the admissions committee set aside 16 out of 100 seats in its entering class for these special admissions, who were evaluated using lower-than-normal standards. Bakke, a white applicant filed suit under the Equal Protection clause of the 14th Amendment claiming that he had been unconstitutionally denied admission, since the medical school admitted minority applicants less qualified than he. Bakke also argued that whites could compete for only 84 seats, while minorities could compete for all 100. Thus, not all applicants were being treated equally.

The Supreme Court ruled in favor of Bakke. It said that the admissions program was unlawful because it violated the white applicant's right to equal protection under the law. Further, the Court made it clear that affirmative action programs are permissible when an organization has discriminated in the past and the program is used to remedy past instances of discrimination. There was no such history of racial discrimination at the university to justify such an extreme program of preferential treatment. The Court also said that affirmative action programs are permissible, as long as they consider applicants on an individual basis rather than setting aside a fixed number of position openings that whites cannot fill.

In the *Weber* case, the company and union jointly agreed to set aside

50 percent of the openings for blacks in a skilled-trades training program. Brian Weber, a white male employee, brought suit under Title VII, claiming that he was unfairly passed over for this training even though he had more seniority than some of the blacks admitted to the program. The Supreme Court ruled against Weber. The Court held that employers may give preference to minorities and women in hiring and promotions for "traditionally segregated job categories" and that it need not admit past discrimination in order to initiate such voluntary affirmative action programs. The court also supported the fact that Kaiser's program was a temporary measure intended to remedy their racial imbalance in their Gramercy, Louisiana, plant. This final court case is quite significant because it puts pressure on employers to establish affirmative action programs to eliminate racial and sexual discrimination (Cascio, 1982).

In a recent court case, *Teal* v. *State of Connecticut* (1982), the Supreme Court held that "bottom line" results in employment decisions do not preclude plaintiffs from establishing a prima facie case of discrimination, nor do they provide defendants (i.e., employers) with a defense to such a case. Specifically, to attain permanent status as supervisors, both black and white employees at a Connecticut state agency had to participate in a selection process that required, as a first step, a passing score on a written test. Even though the bottom-line results of the process were more favorable to blacks than whites (i.e., 22.9 percent of the black candidates were promoted compared with 13.5 percent of the white candidates), the Court ruled that the state had violated Title VII by requiring as an absolute condition for consideration for promotion that applicants pass a test that disproportionately excluded blacks (54 percent of the blacks passed the test, this being about 68 percent of the passing rate for whites) and was not job related. The significance of this case is that the various components of the selection process will be examined for adverse impact and validity, regardless of the bottom-line results of the total process.

SUMMARY

The first step in developing a selection or placement program is to conduct a job analysis. Each job for which applicants will be considered should be analyzed in order to obtain a description of the job and the job specification. Next, potential selection devices are developed and/or obtained from appropriate sources. In order to estimate the capacity of each selection device to choose the best people from among the job applicants, a validation procedure must be conducted. If criterion-related validity is used, an accurate criterion of employee performance or job success is needed. One may use either a concurrent (present-employee) method or a predictive (follow-up) method. For certain types of selection devices, such as achievement tests, a content validity approach is recommended.

A selection program is more likely to have utility the higher the validity, the more favorable the selection ratio, and the closer the base rate is to 50 percent. Other factors influencing the utility of the selection program include such things as the cost of testing each applicant, the number of applicants to be hired, and the variability of job performance in dollars. Once valid and economical selection devices have been found, procedures for administering them to applicants and making selection or placement decisions must be developed.

A major concern of organizations in establishing a selection program, besides validity, is equal employment opportunity. Federal legislation in the United States makes it illegal to use selection devices that discriminate on the basis of race, color, religion, national origin, sex, or age. It is also illegal to discriminate against females regarding pay. Employers with government contracts or subcontracts are required to provide equal employment opportunity and take affirmative action toward qualified handicapped people, Vietnam-era veterans, and disabled veterans of all wars.

REVIEW AND DISCUSSION QUESTIONS

1. What conditions affect the utility or practical significance of a selection procedure?
2. Explain why the size and not the sign of a validity coefficient is the important consideration.
3. Describe the steps that you would follow in determining the criterion-related validity of a predictor.
4. Define and explain each of the following key terms: *selection ratio, adverse impact, job analysis, test unfairness, expectancy chart, reverse discrimination, face validity, utility, base rate, job specification, validity generalization.*
5. What are the relative advantages and disadvantages of using multiple-regression and multiple-cutoff approaches? Under what conditions would one approach be better than the other?
6. Suppose you decided to conduct an extensive job analysis of the job of auditor for a large manufacturing organization. How would you proceed in accomplishing this task?
7. Compare and contrast the processes of personnel selection and personnel placement. How does one decide whether a test is valid and useful for each of these processes?
8. If you were responsible for your company's meeting of affirmative action goals, what would you do?

9. In your opinion, what are the major Supreme Court cases dealing with selection decisions? What implications do they have for testing job applicants?
10. What is the Equal Pay Act? How does it differ from the concept of comparable worth?
11. Discuss the similarities and differences between the Equal Employment Opportunity Commission and the Office of Federal Contract Compliance Programs.
12. Describe the advantages of using a concurrent approach versus a predictive approach to validation.
13. Describe the various job analysis methods you read about in this chapter. Which one do you prefer and why?

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16

Design and evaluation of training programs

Almost all private and public organizations have training and development programs (Goldstein, 1980). Some organizations spend as much as 15 percent of their total payroll on these activities. There are at least five major reasons for training and development's widespread popularity. First, personnel selection and placement by themselves do not usually provide organizations with new employees skillful enough to meet the demands of their jobs adequately. Many of these people must learn new skills, attitudes, and knowledge after they are hired. Second, there is mounting government pressure on modern organizations to train minority group members, women, individuals 40 years of age or more, and the hard-core unemployed. Third, experienced employees must sometimes be retrained because of changes in their job content due to automation, advances in computer technology, promotions, and transfers. Fourth, management is aware that effective programs can result in increased productivity, decreased absenteeism, reduced turnover, and greater employee satisfaction. Fifth, some organizations, unfortunately, adopt a particular training technique simply because "everyone else is doing it." A new "supertechnique" appears with a group of people extolling its virtues and with only a few empirical studies supporting it. The new technique is widely used until there is backlash, another new fad appears, and the cycle begins again (Campbell, 1971).

IDENTIFYING TRAINING NEEDS

The first phase in the instructional process must involve a *systematic* assessment of the organization's training needs. Too often, training the job. Step 2 is the most crucial, since it entails identifying the specific tasks of which the job is composed. Although there are several different *task-identification* procedures available (see McCormick, 1976), an excellent approach involves the development of a job inventory (sometimes referred to as a task inventory). A job inventory is a questionnaire that consists of a listing of all the specific tasks comprising a particular job. It is developed by the training specialist after having small group meetings with those employees and supervisors most knowledgeable about the tasks involved in the job. Listed below are several tasks that were generated during group sessions held with department store sales managers:

1. Ensures that salespeople keep fitting rooms neat and clean.
2. Schedules weekly work schedules of salespeople.
3. Posts weekly department sales results in Store Manager's office.
4. Informs all salespeople regarding upcoming newspaper and radio advertisements.
5. Gives merchandise presentation ideas to Merchandise Presentation Manager.

The job inventory is constructed and mailed to a random sample of employees currently working in the job. These individuals are asked to rate each of the tasks in terms of both its importance and amount of time spent (Wexley & Silverman, 1978). An example of a portion of a typical job inventory is shown in Figure 16–2. After the inventories are returned, the training specialist calculates the average rating for each task for both time spent and importance. The end result of this procedure is a detailed analysis of the job's tasks as seen by many knowledgeable individuals.

The information obtained from the job description and the task identification is used to generate the course objectives. These objectives specify the skills and behaviors to be learned by the end of the training program. Listed below are a few course objectives that trainees are expected to achieve upon completion of a three-week department store Sales Manager training program:

1. Be able to maximize the use of full-time and part-time employees through efficient scheduling.
2. Effectively handle customer complaints.
3. Be familiar with all department inventory.
4. Be knowledgeable about store return policies.
5. Be familiar with the proper display and dress of mannequins.

The course objectives are then used by the training specialist to decide on the training program content (i.e., its length, methods, and materials).

FIGURE 16–2
An example of a job inventory used with department store sales managers

INSTRUCTIONS: For each task activity, *circle* the number corresponding to its importance for *your* job and the amount of time you spend on it.	*Importance* 1—*Not at all* important 2—*Slightly* important 3—*Moderately* important 4—*Very* important 5—*Extremely* important	*Amount of time spent* 0—*Never* do this task 1—*Very little time* compared with other tasks 2—*Somewhat less time* compared with other tasks 3—*Same amount of time* as other tasks 4—*More time* compared with other tasks 5—*A great deal more time* compared with other tasks
1. Ensures that salespeople keep fitting rooms neat and clean.	1 2 3 4 5	1 2 3 4 5
2. Schedules weekly work schedules of salespeople.	1 2 3 4 5	1 2 3 4 5
3. Posts weekly department sales results in Store Manager's office.	1 2 3 4 5	1 2 3 4 5
4. Informs all salespeople regarding upcoming newspaper and radio ads.	1 2 3 4 5	1 2 3 4 5
5. Gives merchandise presentation ideas to Merchandise Presentation Manager.	1 2 3 4 5	1 2 3 4 5

Person analysis

Person analysis deals with the individual employee. It attempts to answer the question, "*Who* needs training and what kind? (McGehee & Thayer, 1961). The first step is concerned with determining how well each employee is doing his/her job by using appraisals by supervisors (see Chapter 13), job-knowledge tests, and company production records. The results of this performance appraisal determine whether or not Step 2 (referred to as "diagnosis") is needed. If the appraisal indicates that the employee's job performance is satisfactory, then there is no need to perform Step 2. If, on the other hand, the employee's job performance is found to be below standard, this is a signal that diagnosis is needed. The diagnosis involves carefully determining what particular things the individual needs to change to improve his or her job performance. For example, Ed is employed as a Sales Manager for a medium-size department store in Detroit. His job involves supervising about ten salespeople in the Sporting Goods department. Ed's performance has been below standard since he was hired several months ago after working for another department store chain. By diagnosing Ed's performance deficiencies, it is made clear that he spends too much of his time on the sales floor selling and not enough managing his department. It is obvious that Ed needs training in such basic areas of managing as delegating, scheduling, budgeting, and planning.

Comments on identifying needs

It is obvious that the three kinds of analyses described above require a lot of time and energy to conduct. It is not something that a single individual in an organization can complete overnight. These analyses, to be effective take the combined efforts of many specialists (e.g., job analysts, work force analysts, cost accountants) carefully collecting information over several years. It should be an ongoing process, since organizations are continually changing in terms of their jobs, products and services, climate, and so forth. The three analyses must be conducted simultaneously because they interrelate so highly with one another. In our opinion, the approach presented here is the most sophisticated and comprehensive one at the present time. Finally, one must remember that the organization is an open system and that there are various outside social, political, economic, and geographical factors that may affect its training needs.

PRINCIPLES OF LEARNING

Since the basic foundation of all training and development is human learning, it is important for us to agree on a comprehensible definition of this rather complex phenomenon. *Learning* can be defined as a relatively permanent change in behavior or acquisition of knowledge that occurs as a result of experience or practice (Bass and Vaughn, 1966; McGehee & Thayer, 1961). The process of learning cannot be seen directly. It can only be inferred whenever an individual's job behavior or test performance shifts from one level to another as a result of going through certain experiences. Of course, we realize that it is possible for an individual to learn something, yet show no overt behavior change. Unfortunately, one would not know the person learned unless one could detect a change in performance.

Over the years, psychologists have expended considerable effort in studying the process of learning in both humans and animals. Although there is still a great deal they do not know, experimental psychologists have uncovered certain principles of learning that are applicable to organizational training and development. We believe that a knowledge of these principles can be helpful in designing training programs and in choosing among alternative training methods. These principles should be regarded as "guiding principles" and not "laws." They should be applied cautiously with full cognizance of the type of trainees, the training material, and the organization in which training takes place. Many of these learning principles have been incorporated into the design of successful training programs.

Trainability

Trainability depends upon the individual's ability and motivation levels. Ability refers to the extent to which the person possesses the basic "horsepower" to perform the tasks of the job. Does the individual possess the strength and muscular coordination to be a pole climber for the telephone company? Does he possess such personality characteristics as self-confidence, sociability, and assertiveness to sell cosmetic products door-to-door? Does she have the logical reasoning and quantitative abilities to learn computer programming or electronics?

Motivation has to do with those variables that influence the individual's behavior during training. Especially important is the person's intrinsic interest in what is being taught during training. Also important is the individual's expectancy that participation in training will lead to certain desired outcomes, such as a higher paying job, a promotion, greater job security, and more status among friends.

We can express the relationship between ability and motivation by the following formula:

$$\text{Performance} = \text{Ability} \times \text{Motivation}$$

According to this formula, a trainee's performance will be greatest when he/she possesses maximum ability and motivation. The object, then, is to select individuals for training who possess both the ability and motivation to perform what is taught in training.

Meaningfulness of the material

Factual material is learned easier and remembered better when it is meaningful for the trainees. By meaningfulness we mean material rich in associations and easily understood (McGehee & Thayer, 1961). There are at least five ways that training materials can be made more meaningful.

1. At the start of training, provide the trainees with a bird's-eye view of the material to be presented. Knowing the overall picture and understanding how each unit of the program fits into it facilitates

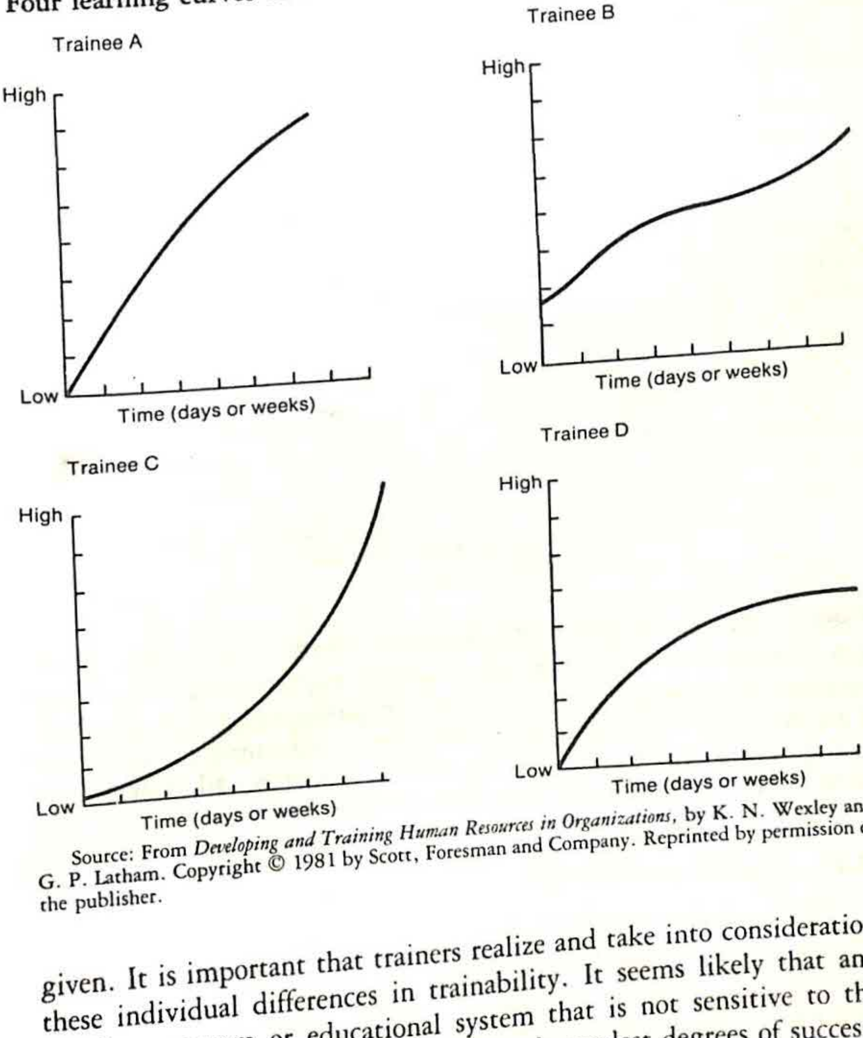
the acquisiton of each element and the training as a whole. An excellent illustration of this would be the professor who gives you a detailed course outline and course objectives during the first day of class.

2. Present the material using a variety of examples familiar to the trainees. For example, a supervisory training program for head nurses in a hospital should employ examples concerning patient care. The same training program conducted with restaurant managers should include examples concerning customer service.
3. Organize the material so that it is presented in a logical manner and has meaningful units. For example, it has been shown that trainees learn best when they are told the function of a piece of machinery (i.e., what it is used for and when they will need to use it) *prior* to learning its specific parts and operations.
4. Complex intellectual skills are invariably composed of simpler skills, which must be taught first. For instance, a mechanical trainee must first learn to successfully differentiate among various machine components before being able to understand such concepts as gears, bushings, and couplings. Once these discriminations and concepts are learned, the trainee is ready to absorb simple rules (e.g., how a gear reducer operates) and higher-order rules (e.g., how to assemble a complex set of reduction gears to solve a specific mechanical application problem) (Wexley & Latham, 1981). All of this suggests that the most meaningful sequence for learning is from the specific to the broad: Associations and chains → Discriminations → Concepts → Rules → Higher-order rules (Gagné, 1977).
5. Use as many visual aids as possible to augment theoretical materials. For example, the better instructor will use overhead projectors, videotapes, flip charts, and/or handout materials.

Individual differences

Learning curves are used to indicate how a trainee's rate of learning varies as a function of continued practice. Figure 16–3 illustrates four curves that occur with some regularity in employee training. These curves have been smoothed out; actually, learning curves are jagged and irregular. Knowledge of learning curves is important, since they provide trainers with some understanding of the pattern in which new skills are developed. They emphasize the important fact that individuals differ considerably in their patterns of learning. Some trainees learn faster; some begin training with more expertise; others are capable of higher terminal levels of performance; still others are barely capable of improving at all regardless of how much practice they are

FIGURE 16–3
Four learning curves of four trainees

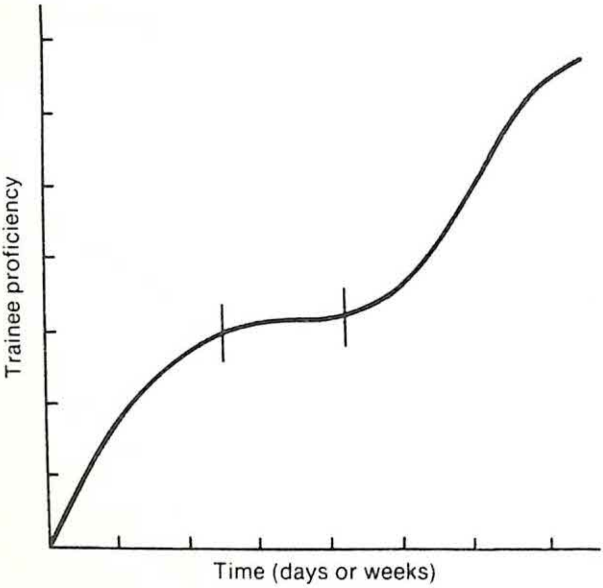


Source: From *Developing and Training Human Resources in Organizations*, by K. N. Wexley and G. P. Latham. Copyright © 1981 by Scott, Foresman and Company. Reprinted by permission of the publisher.

given. It is important that trainers realize and take into consideration these individual differences in trainability. It seems likely that any training program or educational system that is not sensitive to the individual needs of trainees can reach only modest degrees of success.

During the course of learning, some trainees will exhibit what is called a plateau. Notice for a moment the learning in Figure 16–4. Can you see how, despite additional training trials, there does not appear to be any improvement in performance? For some reason it seems that the trainee has temporarily stopped learning. The trainee's interest may have waned temporarily; the person may be in the process of integrating simple skills into more complex skills; and/or the individual may need a different method of instruction (Wexley & Latham, 1981). Regardless of the cause, it is essential that the trainer realize that the trainee has not reached the final level of performance and that con-

FIGURE 16–4
An S-shape learning curve with a plateau



tinued practice will again bring about improvement; otherwise, training will be prematurely stopped. It is also important that the trainer motivate the learner at this time of frustration and discouragement. This may involve applying extra incentives, explaining to the trainee that plateaus are often par for the course, providing additional feedback, and encouraging the trainee not to lose hope.

Active practice and repetition

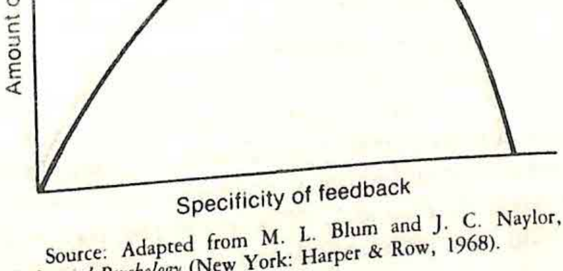
Whether a trainee is learning a new motor skill or studying a new subject, it is generally agreed that the greater the opportunity for practice and repetition of whatever is being taught: (1) the better it will be learned and (2) the less easily it will be forgotten. Thus, it is important that training programs be designed so that individuals are given adequate opportunity to practice new motor skills so that correct responses are well ingrained. When studying a new subject (e.g., accounting), the trainee makes implicit responses rather than observable ones. Nevertheless, here too, the trainee must be given time to rehearse overtly and covertly the knowledge being learned.

It is important that individuals be given feedback regarding the adequacy of their efforts during training. Trainees should be told when, how, and why they have done something correctly or incorrectly (Ilgen, Fisher, & Taylor, 1979). Feedback—whether in the form of verbal praise, criticism, tangible rewards, censure, penalties, or performance data—serves the dual function of motivating the trainee to learn and providing information about performance. Imagine how difficult and boring it would be for trainees to learn some skill (e.g., playing tennis) if they had no feedback whatsoever about how they were doing. Without a trainers's specific comments regarding the accuracy of their performance, it would not be long before they would discontinue learning.

Feedback should be timed so that it is provided as soon as possible after the trainee's performance. In this way, the information can be used immediately to either alter or strengthen the individual's actions. Additionally, the specificity or amount of feedback provided must be appropriate to the particular capabilities of the learner. Too much feedback at once can lead to confusion, frustration, and performance decline on the part of the trainee. Likewise, too little feedback can result in similar outcomes. It appears that for each task and each trainee there is an optimum level of feedback specificity that should be provided. It is essential that trainers be aware of this inverted-U relationship when designing training programs (see Figure 16–5).

Praise can be a powerful source of positive feedback. For example, a trainer may look at various indices of trainee performance (e.g., sales results and numerous sales behaviors) and compliment the positive aspects of the individual's performance. Making praise contingent on the trainee's performance will usually strengthen that behavior (Wexley & Latham, 1981).

FIGURE 16–5
Hypothesized relationship between specificity of feedback and amount of learning



Source: Adapted from M. L. Blum and J. C. Naylor, *Industrial Psychology* (New York: Harper & Row, 1968).

Should trainers provide negative feedback? Such negative feedback as "You speak too rapidly during sales presentation to customers," and "You're absent from work too often," can be effective, so long as the negative feedback does not become punitive for the trainee. Of course, what will be experienced as punitive will depend upon a whole host of factors—such as the interpersonal relationship between the trainer and trainee (respect, liking, trust) and the trainee's level of self-confidence. In general, negative feedback is best when it: (1) is delivered immediately after the undesirable behavior occurs, (2) is given by a trainer who has a relatively close and friendly relationship with the trainee, (3) indicates clearly what was done incorrectly, (4) is given consistently after every ineffective behavior, and (5) is made clear to trainees what alternative correct behaviors should be exhibited in the future (Arvey & Ivancevich, 1980).

Massed or distributed practice sessions

What is the best way to schedule practice sessions? If, for example, you decided to give trainees eight hours of practice, which of the following schedules would be best to use?

One eight-hour nonstop session.
Four hours a day for two days.
Two hours a day for four days.
A half hour a day for 16 days.

In essence, the question being raised is whether it is better to practice something all at once or whether the practice periods should be stretched out over time. In general, the literature suggests that for the learning and retention of motor skills (e.g., operating a lathe) and verbal skills (e.g., memorizing safety rules), distributed practice periods interspersed with reasonable rest periods are better than massed sessions. Therefore, in this case, it would be best to schedule practice sessions for a half hour a day for 16 days.

Size of the unit to be learned

Should one try to teach the entire task at each practice session (whole method) or is it more efficient in the long run to teach individual segments of the total task at each session and as the trainee begins mastering each subtask begin the process of combining them (progressive part method)? Imagine for a moment a task consisting of three separate subtasks, A, B, and C. Whole and progressive part training schedules would take place as follows:

	Training Session			
	1	*2*	*3*	*4*
Whole training	A + B + C	A + B + C	A + B + C	A + B + C
Progressive part training	A	A + B	A + B + C	A + B + C

It has been shown that the relative effectiveness of these two strategies depends upon two aspects of the task to be learned: task complexity and task organization. Task complexity refers to the difficulty of each of the subtasks comprising the total task. Task organization refers to the degree of interrelationship among the set of subtasks. For highly organized tasks, the whole method seems to be superior to the part method. Progressive part training, however, is superior to the whole method when task organization is low. These statements are especially true as the complexity of the subtasks increase (Blum & Naylor, 1968).

Now let's look at a few examples to clarify these points. Imagine how ridiculous it would be to teach someone to drive a forklift truck or automobile using progressive part learning. Individual lessons would have to be devoted to such things as starting the engine, steering, braking, backing up, and shifting. Since the skills required here are highly interrelated, a whole training method is preferred. On the other hand, suppose you wanted to train someone to be a secretary. Here, training sessions would best be devoted to such independent topics as answering telephone calls, greeting visitors, taking dictation, photocopying reports, and typing business letters.

These two examples offer situations that are clearcut. In many situations, however, a combination of whole and progressive part training is used to optimize the benefits of both approaches. For example, suppose you had to memorize a presentation to be given in one of your classes. Where the different parts of the material are logically related, the whole method should be used. Where your material is very complex and long, it is best to split it into separate parts and learn it progressively. Suppose also that you desired to be an electrician. Certain training sessions would be devoted to such specific topics as tachometers, reading schematic drawings, DC motors, and thermocouples. Other sessions would concern larger chunks of the job, such as wiring machinery and equipment.

Overlearning

Overlearning refers to giving the trainee continued practice even after the task has been performed correctly several times. By providing thorough learning, the following benefits can result: (1) trainees will be better able to positively transfer what they have learned to their jobs; (2) trainees will be more likely to maintain performance on their real conviction that it works, but because their competitors are doing it or their unions are demanding it.

4. Some training programs are extremely difficult to evaluate because the behaviors taught are extremely complex and ambiguous (e.g., T-group training for high-level managers).
5. After spending huge amounts of money on the training itself, some organizations are reluctant to spend even a dollar more on evaluation.
6. Some managers see training as a function that requires little knowledge or skill. They have no conception of the sophisticated experimental and statistical techniques available for assessing training effectiveness.

The evaluation of training has two main aspects. The first is that of determining whether the behavior changes brought about by the training program contributes to the achievement of organizational objectives. The second involves comparing various training techniques to determine if any one or combination of techniques is superior for the purpose of achieving the desired results. To deal with these two problems, the evaluation process must involve the use of several measures of training effectiveness and an experimental design that allows us to conclude with assurance that any success is due to the training itself and not to some other cause. In the next two sections we will discuss measures of training effectiveness and then touch briefly on a few useful experimental designs.

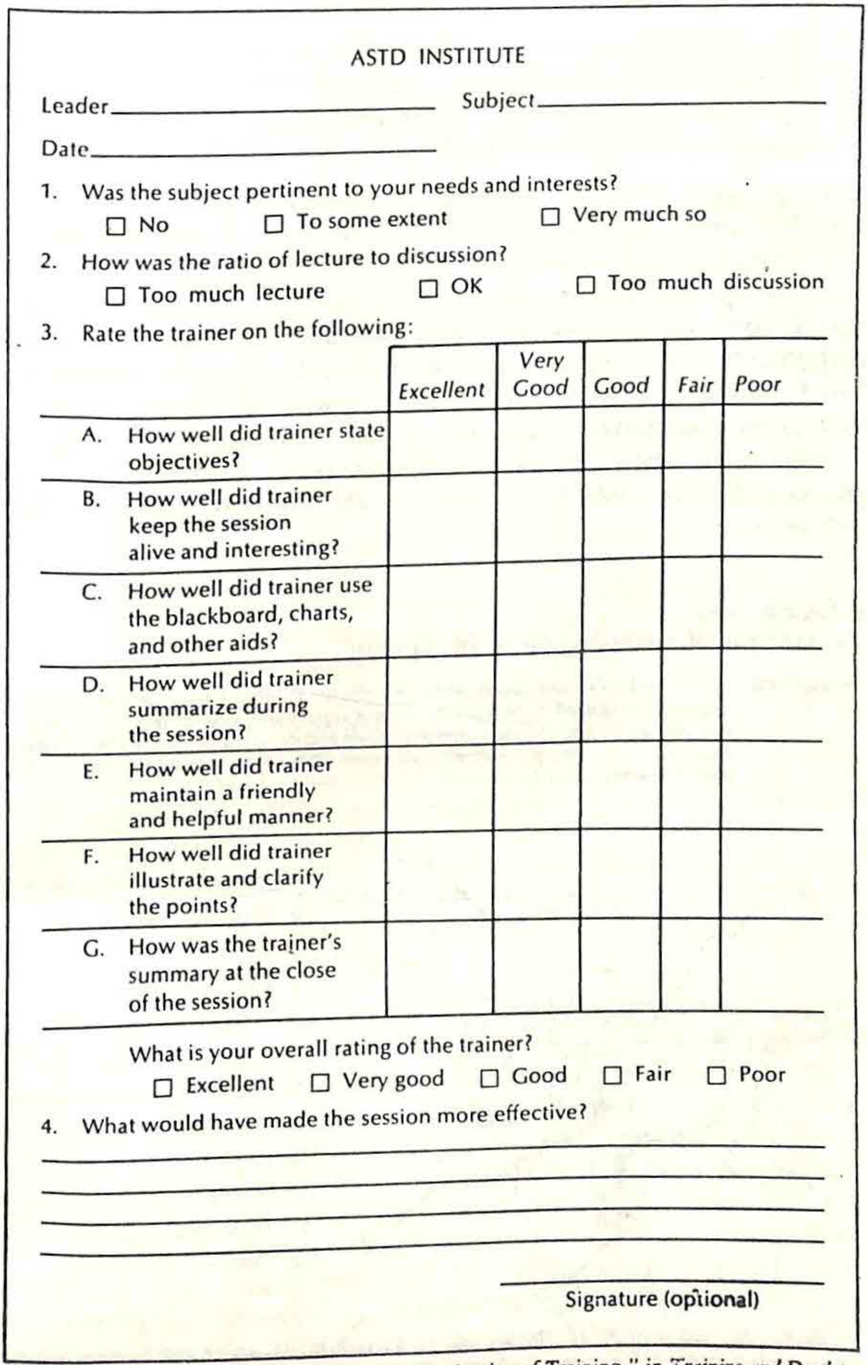
Measures of training effectiveness

The effectiveness of training programs should be evaluated in terms of four types of outcomes—namely, *reaction, learning, behavior,* and *results* (Kirkpatrick, 1959).

Reaction The initial step in the evaluation process involves measuring *reaction,* that is, how well the trainees liked the program. This entails determining first what you want to find out from the trainees and then designing a form so that their answers are anonymous and easy to tabulate and score. They should also be permitted to write in additional comments not covered by your questions. The comment sheet shown in Figure 16–6 illustrates this type of reaction form. Although a favorable reaction on the part of trainees is important because it helps to ensure organizational support for any program, it does not guarantee that learning has taken place.

Learning Learning refers to the principles, facts, and techniques that were absorbed by the trainees. Knowledge of principles and facts is measured by paper-and-pencil tests similar to those used in college

FIGURE 16–6
Example of a form used to measure trainee reaction



ASTD INSTITUTE

Leader____________________ Subject____________________

Date____________________

1. Was the subject pertinent to your needs and interests?
   ☐ No ☐ To some extent ☐ Very much so
2. How was the ratio of lecture to discussion?
   ☐ Too much lecture ☐ OK ☐ Too much discussion
3. Rate the trainer on the following:

	Excellent	*Very Good*	*Good*	*Fair*	*Poor*
A. How well did trainer state objectives?					
B. How well did trainer keep the session alive and interesting?					
C. How well did trainer use the blackboard, charts, and other aids?					
D. How well did trainer summarize during the session?					
E. How well did trainer maintain a friendly and helpful manner?					
F. How well did trainer illustrate and clarify the points?					
G. How was the trainer's summary at the close of the session?					

What is your overall rating of the trainer?
☐ Excellent ☐ Very good ☐ Good ☐ Fair ☐ Poor

4. What would have made the session more effective?

____

____

____

____

____
Signature (optional)

Source: Adapted from D. L. Kirkpatrick, "Evaluation of Training," in *Training and Development Handbook* eds. R. L. Craig and L. R. Bittel (New York: McGraw-Hill, 1967), p. 90.

courses. The following are two items that might be used in a test for measuring knowledge of industrial pipefitting:

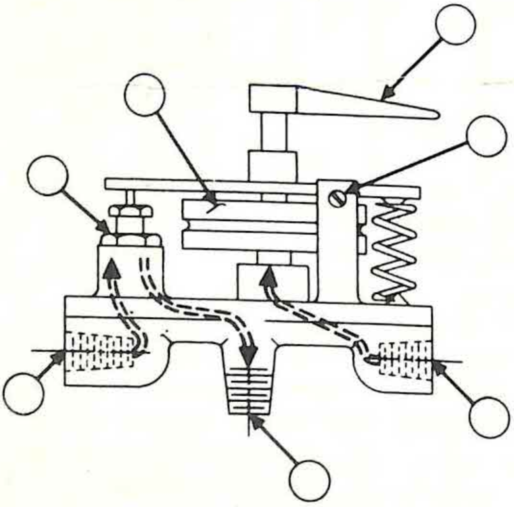
1. What type of gasket material would you use on a cold water line? (a) composition; (b) rubber; (c) paper; (d) cork.
2. Up to what pressure can you use forged steel pipe fillings? (a) 150 pounds; (b) 300 pounds; (c) 800 pounds; (d) 2,000 pounds.

Although multiple-choice questions are acceptable for assessing learning, they merely tap the trainees' ability to recognize information or misinformation put before them rather than using their memory to recall the answers. For this reason, the fill-in-type questions shown in Figure 16–7 are preferred over multiple-choice or true-false items. Performance tests, such as those presented in Figure 16–8, are excellent for assessing how well trainees have mastered a particular skill, such as door hanging/lock assembly or electrical wiring.

Behavior The following personal experience described by Kirkpatrick (1967, pp. 100–101) is the best way of introducing step three *(behavior):*

FIGURE 16–7
An example of a completion or fill-in item

Instructions: Notice that there are seven circles on the print. Notice that there is a list of answers numbered 1 through 12 on the right-hand side of the print. Seven answers are correct, five answers are wrong and do not apply. Write one of these seven correct answers in each of these seven white circles. Use the numbers. Use each number only once.



1. Instrument air connection
2. Pressure capsule
3. Set pointer
4. Metering needle valve
5. Orifice
6. Capillary tube
7. Connection to control valve
8. Pilot valve
9. Chart plate
10. Nozzle
11. Pressure connection
12. Fulcrum

Source: Adapted from K. N. Wexley and G. P. Latham, *Developing and Training Human Resources in Organizations* (Glenview, Ill.: Scott Foresman, 1981), p. 85. Reprinted by permission.

FIGURE 16–8
Instruction to performance test for carpenters and electricians

Test for Carpenters: "You have before you a mockup of a door frame and a door. You are required to hang the door and install the lock set and strikeplate. When you are finished the door must be hung squarely and open and close with ease, and the lock must operate okay. You have one hour to complete this job. You have all the necessary tools and materials."

Test for Electricians: "You have in front of you a panel and a schematic wiring diagram. I want you to wire the panel using the appropriately numbered wires according to the numbers as shown on the schematic. You will have 1-1/2 hours to complete this job. You will be given a test light to use to find the normally open and normally closed circuits. The terminal board at the top represents the nine leads of the 440/220V three-phase motor to be connected for 440V operation. Before you begin, do you have any questions about any of the equipment on the panel?"

> During the week I was particularly impressed by a foreman named Herman from a Milwaukee company. Whenever a conference leader asked a question requiring a good understanding of human relations principles and techniques, Herman was the first one who raised his hand. He had all the answers in terms of good human relations approaches. I was very impressed and I said to myself, "If I were in industry, I would like to work for a man like Herman." It so happened that I had a first cousin who was working for that company. And oddly enough Herman was his boss. At my first opportunity, I talked with my cousin, Jim, and asked him about Herman. Jim told me that Herman might know all the principles and techniques of human relations, but he certainly did not practice them on the job. He performed as the typical "bull-of-the-woods" who had little consideration for the feelings and ideas of his subordinates. At this time I began to realize there may be a big difference between knowing principles and techniques and using them on the job.

The appraisal of on-the-job behavior should be gathered from as many qualified sources as possible, such as the trainee's superiors, immediate peers, and subordinates. This appraisal should be made several months after training in order to give the individual adequate opportunity to put into practice what has been learned. Several of the performance appraisal techniques presented in Chapter 13 can be used in the evaluation of behavior. For example, Figure 16–9 shows a portion of a behavioral observation questionnaire that was used in the evaluation of a two-month training program for tire store managers. This behavioral measure was completed by each store manager's district supervisor one year after the completion of the training (Wexley & Latham, 1981).

FIGURE 16-9
An example of a behavioral observation questionnaire completed by supervisors

Store Manager ______________________________

District Supervisor ______________________________

Date ______________________________

INSTRUCTIONS: Please consider the above-named individual's behavior on the job for the past 12 months. Read each statement carefully, and on the basis of your actual observation or on dependable knowledge, circle the number that best indicates the extent to which this particular store manager actually demonstrated each of the following behaviors. For each behavior, a "5" represents "Almost Always" or 95 to 100 percent of the time. A "4" represents "Frequently" or 85 to 94 percent of the time. A "3" represents "Sometimes" or 75 to 84 percent of the time. A "2" represents "Seldom" or 65 to 74 percent of the time. A "1" represents "Almost Never" or 0 to 64 percent of the time.

An example of an item is shown below. If the store manager comes to work 95 to 100 percent of the time, you should circle "5."

Example: Comes to work
Almost Never 1 2 3 4 5 Almost Always

1. Holds weekly credit collection meetings with his/her sales personnel and credit manager.

   Almost Never 1 2 3 4 5 Almost Always

2. Keeps his/her salespeople informed of competitive conditions in the local market.

   Almost Never 1 2 3 4 5 Almost Always

3. Personally reviews all invoices for correct billing and merchandise received.

   Almost Never 1 2 3 4 5 Almost Always

4. Takes inventory monthly, checks discrepancies, and promptly corrects any items requiring correction.

   Almost Never 1 2 3 4 5 Almost Always

5. When there is a conflict among employees, takes the time to sit down and discuss the causes and resolution.

   Almost Never 1 2 3 4 5 Almost Always

Source: Adapted from K. N. Wexley and G. P. Latham, *Developing and Training Human Resources in Organizations* (Glenview, Ill.: Scott Foresman, 1981), p. 88. Reprinted by permission.

RESULTS The last step deals with an important question: What were the tangible *results* of the program in terms of such things as reduced cost, improved quality and quantity of production, and decreased absenteeism? For example, the results or cost-related measure used to evaluate a training program for industrial supervisors at General Electric Company was calculated using the following formula:

$$\text{Performance} = \frac{\text{Actual productivity}}{\text{Standard productivity}}$$

Actual productivity was the production level actually achieved by a supervisor's work group within a specified production period (e.g., six months). Standard productivity referred to the production level that management had estimated through time and motion study that the work group was expected to achieve during this given production period (Goldstein & Sorcher, 1974). Unfortunately, in many cases, these kinds of cost-related measures are either impossible to obtain or contaminated by so many other factors so as to make them virtually useless. In these situations, the training analyst must resort to evaluations in terms of reaction, learning, and behavior. Whichever measures are used, their reliability, validity, and practicality should be seriously considered (Latham & Wexley, 1981).

Experimental designs and analysis

In this section we will present a few examples of the numerous experimental designs that have been used to assess the effects of training on learning, behavior, and results. As we shall see, these designs differ a great deal in terms of their rigorousness and, consequently, their value. We mentioned earlier that most evaluation research is done poorly. One reason for this is the weak designs employed. Presented below are three *preexperimental* designs that are used quite often in organizations but are in fact unacceptable. In presenting the designs, an X will represent the exposure of a group to training; T_1, the pretest; T_2, the posttest; and R, the random assignment of individuals to separate treatment groups.

Design 1.	Measures after training without a control group.	——	X	T_2
Design 2.	Measures before and after training without a control group.	T_1	X	T_2
Design 3.	Measures after training with a control group.	——	X	T_2
		——	——	T_2

Design 1 has no value at all. There is no way to measure changes in performance, since no pretest was administered prior to training. Design 2 permits us to assess changes, but we have no idea whether the $T_1 - T_2$ differences are due to training or to such extraneous factors as maturation processes within the trainees, exposure to the pretest, or specific events occurring within the organization between the pretest and posttest in addition to the training. Without a control group, one can never be certain what brought about the changes. Design 3 uses a control group but is still weak. Even if we found a difference in performance between the trained and untrained groups, we have no assurance that these two groups were comparable in knowledge of the subject being taught prior to the training program.

A recommended design is one that entails a training group and a control group, both of which are measured before and after training. In this design, equivalency of groups is achieved by randomly assigning individuals (e.g., with a toss of a coin) to the two conditions. Although this design cannot be said to be perfect, it controls for most extraneous factors and is feasible in most organizations.

R	T_1	X	T_2
R	T_1	——	T_2

Before and after training with control group

In a nutshell, this analysis tells whether or not the trained group showed a significantly greater gain in performance than did the control (untrained) group. If the training program proves to be successful, what should be done for those individuals in the control group? The control group can now be trained and measured subsequent to their learning. In this way, the results obtained from training group two can corroborate the results gotten with the first training group.

More sophisticated experimental designs

We will now turn to two additional designs that have more experimental control than the designs we have already discussed. Due to their increased complexity, they put us in a better position to truly determine whether or not a training program has had the desired effects. Unfortunately, these designs are considerably more difficult to implement in organizations as a result of their complexity. We will discuss the Solomon Four-Group and Multiple Time-Series designs.

The *Solomon Four-Group design* is illustrated in Figure 16–10. Notice that the first two groups are treated in the exact same way as in the before and after training with control group design discussed previ-

FIGURE 16–10
Solomon Four-Group Design

Group 1 (trained)	*A* Measure performance before training	Training	*B* Measure performance after training
Group 2 (untrained)	*C* Measure performance before training	——	*D* Measure performance after training
Group 3 (trained)	——	Training	*E* Measure performance after training
Group 4 (untrained)	——	——	*F* Measure performance after training

Source: K. N. Wexley and G. P. Latham, *Developing and Training Human Resources in Organizations* (Glenview, Ill.: Scott Foresman, 1981), p. 96. Reprinted by permission.

ously. However, two additional nonpretested control groups have been added. Note that now the effects of training can be assessed in four different ways with this design: Measure B should be larger than (>) Measure A; Measure B > Measure D; Measure E > Measure F; and Measure E > Measure C. There is always the possibility that by merely collecting pretest measures trainees may have been helped in their learning. This source of contamination is called pretest sensitization, and it cannot be adequately measured or controlled using the traditional two-group design. However, with the Solomon Four-Group, it can be assessed. Specifically, if there is no pretest sensitization, then Measure E should be the same as Measure B.

Although the Solomon Four-Group is an excellent experimental design, it is seldom used in organizations. It requires a sizable number of employees (40 or more) and their random assignment into four, instead of two, groups.

Figure 16–11 illustrates the Multiple Time-Series design (Campbell & Stanley, 1966). Here, employees are randomly assigned to either the group that receives training or to the group that does not. A series of

FIGURE 16–11
The Multiple Time-Series Design

M_1 M_2 M_3 M_4 M_5 M_6 M_7 M_8 M_9 M_{10}	Training	M_1 M_2 M_3 M_4 M_5 M_6 M_7 M_8 M_9 M_{10}
M_1 M_2 M_3 M_4 M_5 M_6 M_7 M_8 M_9 M_{10}	———	M_1 M_2 M_3 M_4 M_5 M_6 M_7 M_8 M_9 M_{10}

M = daily or weekly measures

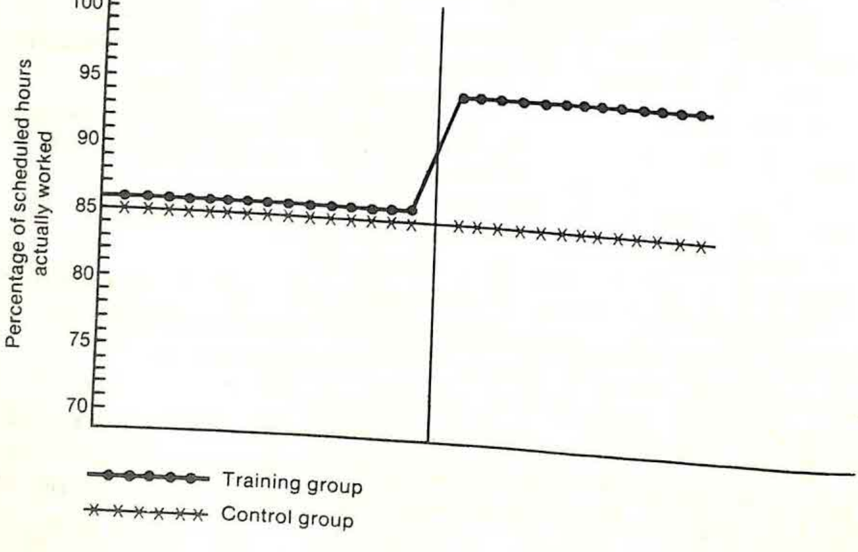
measurements are taken prior and subsequent to the time when training/no training occurs. The logic of this design is that if performance suddenly increased and remained high following training but remained at the same baseline level in the control group after training, one could conclude with assurance that the training program brought about the improvement in performance. The key feature of this design is that there must be a sufficient number of pretest and posttest data points covering a sufficiently extended period of time so that all possible patterns of variations can be ascertained. Figure 16–12 shows the pattern of results from a successful training program.

Some recommendations

Before ending this discussion of training evaluation, there are several general comments that should be made:

1. Do not assume a training or development program is effective because of hearsay or because it worked in other organizations. Always evaluate it in your organization.

FIGURE 16–12
Mean attendance data for the 15 weeks before and 12 weeks after a hypothetical training program to increase attendance



2. Plan your evaluation of the training program at the same time the program is being developed, not after it is finished.
3. Make certain the measures used to evaluate the training program are reliable, valid, free of contamination, and practical.
4. It is not enough to prove that a change in behavior is statistically significant. You should also determine the practical significance or utility of the training from the organization's viewpoint by comparing the benefits with the costs.
5. Examine the relationship between the effectiveness of the training program and other aspects of the organization, such as its selection and placement system.
6. Examine the effectiveness of training over time (e.g., six months after the trainees have returned to their jobs) to make certain that its effects hold up.

SPECIAL TRAINING CONCERNS

A distinguishing feature of the final section of this chapter is its concern with current social issues.[1] As a result of Title VII of the 1964 Civil Rights Act and the 1973 Vocational Rehabilitation Act and several executive orders from the president, organizations with 15 or more employees who work 20 or more weeks a year are making special efforts to hire and train "disadvantaged" persons (the hard-core unemployed, the handicapped, workers over age 40). One group that has received considerable attention is the hard-core unemployed.

The hard-core unemployed (HCU)

It is difficult to precisely define the term *HCU* because the specific criteria applicants must meet for entrance into HCU training programs varies between organizations. Nevertheless, the typical HCU individual is a member of a minority group, has been unemployed for more than a year, has never received intensive skill training, and has a sixth-grade education with a third-grade reading level and a fourth-grade math level (Adelberg, 1969). Moreover, he/she is usually under 22 years of age and of a poverty level specified by the Department of Labor (Goodman, Salipante, & Paransky, 1973). It is obvious from these characteristics that the training and retaining of the HCU is an enormous challenge.

One of the main objectives of all HCU training efforts is to provide trainees with the skills and attitudes that will allow them to adapt to the predominant culture, which is better educated, of a middle-class socioeconomic level, and values the work ethic (Friedlander & Greenberg, 1971). In order to accomplish this socialization process, most programs have focused on some combination of the following three areas of training (Goldstein, 1974):

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[1] Some of the material presented in the final part of this chapter has been excerpted from Wexley & Latham (1981).

1. *Remedial education.* This consists of such subject areas as basic English and math, written communication, speech, vocabulary, and reading.
2. *Specific job skills.* This consists of training in such skills as auto repair, retail selling, welding, typing, and grocery store clerking.
3. *Motivational and attitude factors.* This consists of such topics as how to conduct oneself in an interview, the importance of attendance and punctuality, acceptable work attitudes, grooming, and personal hygiene.

Several articles have appeared in the literature on training the HCU. A review of these articles reveals that few programs have had any demonstrable utility (Goldstein, 1974). There is little indication that training improves the retention or performance of the HCU worker, despite large expenditures of money by private companies and the federal government.

What can an organization do to improve the effectiveness of its HCU training? The four suggestions discussed below should be kept in mind when designing HCU training programs:

1. The work effectiveness and retention of the HCU depends upon the amount of supportiveness of the organizational climate in which he/she is placed (Friedlander & Greenberg, 1971). Several studies have shown that the perceived supportiveness by the HCU worker of the first-level supervisor and peers greatly affects the HCU's work behavior (Beatty, 1971; Quinn, Fine, & Levitin, 1970). The implication of this finding for our purposes is that organizations must improve the social climate in which HCU workers find themselves by training and orienting the supervisors and co-workers who will most frequently come into contact with them. As an example, one of the authors recently completed an orientation session with supervisors and co-workers before initiating a three-year on-the-job training program for minority group workers. Listed below are some of the topics discussed during these small-group orientation sessions:

The company's policies regarding the hiring and training of minority group members.

Stereotypes held by the supervisors and co-workers about minority group people.

Fears and stereotypes held by the trainees regarding the supervisors and workers.

Strengths and weaknesses of the trainees.
Methods of handling specific problems (e.g., tardiness, absences) that may arise.

2. Research findings indicate that HCU trainees are more willing to conform to middle-class socialization attempts from black than white counselors (Goodman et al., 1973).

3. There are significant individual differences among HCU workers that are often overlooked. For example, several studies have reported a greater dropout rate for younger HCU workers during training; higher job retention for females than males; higher turnover rates for unmarried HCU workers; and higher retention rates for those born in the rural South as opposed to the urban North (Goodman et al., 1973). The important point here is that these individual differences should be taken into account when designing HCU training programs.

4. In order for the program to be successful, the HCU trainee must believe that his/her participation in the training leads to more desirable rewards or outcomes than not being in training (Goodman et al., 1973). This implies that the training program must place its trainees in jobs that are perceived by them as leading to valued outcomes (e.g., high wages, interesting work, opportunity for future advancement, etc.). Unless trainees can expect these behavior-reward contingencies, they will see the training program as just another futile exercise leading nowhere and, therefore, drop out.

The handicapped

The Vocational Rehabilitation Act of 1973 (see Chapter 15) requires employers who perform more than $2,500 worth of work for the federal government to take affirmative action in hiring qualified handicapped employees. The act requires employers to take proactive steps to accommodate workers with disabilities (e.g., wheelchair ramps, redesign of tools and equipment, special training programs). A handicapped person is broadly defined to include any individual with either a physical or mental impairment that substantially limits one or more major life activities. This includes individuals with traditional handicaps (e.g., deafness, blindness), but also people with high blood pressure, diabetes, epilepsy, arthritis, and so on. It also includes individuals with a history of illness (e.g., cancer, heart attack, emotional breakdown) who are no longer affected by their disability (Arvey, 1979).

As a result of this legislation, employers need to review their current personnel procedures to ensure consideration of the job qualifications of known handicapped applicants and employees for all training and development opportunities. Furthermore, employers need to make reasonable accommodations to the physical and mental limitations of employees during training *unless the employer can show that such accommodation* (e.g., modified equipment, extra training, extra supervision, modified job tasks) *would impose an undue hardship on the conduct of their business.* Employers are also encouraged to provide career counseling for known handicapped persons in their organization. Finally, all individuals involved in the recruitment, selection, training, promotion, discipline, and related processes should be trained to ensure their understanding of the organization's commitment to hiring and training the handicapped.

Employees 40 to 70 years of age

In the 1980s, increasing numbers of older individuals will be entering or reentering the work force. The Age Discrimination in Employment Act of 1967 (see Chapter 15) now protects individuals between the ages of 40 and 70 against discrimination with respect to hiring, training, compensation, and other terms of employment. What can organizations do to facilitate the training of older people? First, one critical feature of successful training programs for older workers is to make certain that basic skills are mastered before training progresses to more complex components. This can be accomplished by carefully ordering what is learned during training and establishing performance criteria by which to regulate progression from one level of training to the next (Sanders, Sanders, Mayes, & Seilski, 1976). Second, it is important that the pace of training be relaxed. Finally, older adults will learn better when the training involves activity rather than rote memorization and passive listening (Belbin, 1958). This means that such conventional means of instruction as lectures and note taking need to be deemphasized and replaced by more active learning methods (e.g., teaching machines, equipment simulators, on-the-job training).

SUMMARY

Most organizations have some form of training and development programs for their employees. Such programs provide a major means of improving employee performance and satisfaction. Some organizations also conduct special programs to train hard-core unemployed persons, the handicapped, and older workers.

The first step in designing a training or development program should be the identification of training needs. This entails an organization analysis, a task analysis, and a person analysis. These analyses should be part of an ongoing program of personnel planning and human resource administration.

To be conducted successfully, any training or development program should take into consideration certain fundamental principles of learning. Traditional learning principles include: individual differences in learning patterns, meaningfulness of the subject matter, active practice and repetition, feedback, spacing of the practice sessions, size of the units to be learned, overlearning and positive transfer. It is also important to select trainees for the program who have both the motivation and ability to learn whatever is being taught.

Training and development programs should be evaluated systematically to ensure that they are effective and economical. The evaluation process should use an experimental design that indicates whether changes are due to the training or to some other cause. A recommended design is one that involves a training group and a control group, both of which are measured before and after training. The Solomon Four-Group and Multiple Time-Series designs are more complex than this basic design. Regardless of the design chosen, several kinds of criterion measured should be used, including trainee reactions, acquisition of knowledge, change in actual trainee job behavior, and improvement in trainee performance.

REVIEW AND DISCUSSION QUESTIONS

1. Describe or explain each of the following key terms: *organization analysis, person analysis, learning, negative transfer, progressive part training, overlearning, Multiple-Time series, Solomon Four-Group, hard-core unemployed, Vocational Rehabilitation Act.*
2. How should an organization systematically determine its training needs?
3. Why do some trainees exhibit a plateau in the course of learning?
4. Why has the evaluation of training programs been such a neglected area in some organizations?
5. Certain principles of learning can be very useful in designing training and development programs. Describe in detail the *three* principles you believe are most applicable for improving the training process.
6. The hard-core unemployed face unique problems in the world of work. What are these problems, and how can they be overcome?
7. Design a study to determine whether a training program for improving the interpersonal skills of managers is effective. Be specific in explaining your experimental design and your measures.
8. What can organizations do to facilitate the training of older people?
9. Discuss some of the ways that positive transfer can be maximized.
10. Describe a situation in which you used shaping to change another person's behavior.
11. Training programs should be evaluated using four different types of measures. What are they? Do they differ in importance?

12. Discuss the strengths and limitations of using the Solomon Four-Group compared with the Multiple Time-Series design.
13. Choose a job that you have worked on. Develop a job description; identify its tasks; and generate course objectives.

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17

Training methods and management development

When designing training programs, there is a large variety of methods and techniques from which to choose. In this chapter, we have tried to give the reader a feel for the range of training methods that are currently being used by organizations. These techniques incorporate some of the principles of learning discussed in the previous chapter.

In reviewing the methods, we have grouped them according to whether they are typically carried out on or off the job site. Of course, some of them are used in both circumstances. Each method is described together with its advantages and disadvantages and the research evidence bearing on its effectiveness. When there is little or no research data supporting a method, we are not hesitant about pointing this out. In fact, it is hoped that the reader will come away from this chapter with the realization that considerably more research is needed in this area. At the present time, relatively little is known about which training and development method is best for what, whom, or when.

We will also discuss several methods that are currently being used by organizations to develop managerial talent. In the final part of the chapter, we will discuss some special training concerns.

ON-SITE METHODS

On-site methods are those training and development programs that take place on or near the work site and are typically conducted by an individual's co-workers or supervisor. The main advantage of on-site training is that the problems of transfer of learning (see Chapter 16) and training costs are kept to a minimum. The reason for this is that trainees learn while actually performing their work, which defrays some training costs. Further, they learn in the exact same physical and social environment in which they will be working once the formal training period is completed. The main limitation of on-site training is that sometimes supervisors and co-workers are incapable and/or disinterested in training new employees. This is particularly a problem when experienced employees believe that their job security may be threatened by training newcomers (Wexley & Latham, 1981). To facilitate this type of training, incumbents must be assured that the training of new employees will in no way affect their job security or status.

On-the-job training (OJT)

One of the oldest and most widely used methods of training consists of assigning new employees to experienced workers and supervisors. Typically, the experienced worker is told by a superior to "break in this new trainee" or "teach Mary your job." The trainee is expected to learn the job by watching the experienced employee and by working with the actual machinery and materials that will be used once the formal training is completed. The skilled worker is expected to provide a good model with whom the trainee can identify and to take time out from regular duties to guide the new employee.

The approach offers certain advantages, one of which is its economy. Trainees learn while actually producing, thereby partially paying the costs of their instruction. There is no need to establish any off-site training facilities or to hire professional trainers. In terms of the learning principles, the method facilitates positive transfer, since the training and actual work situations are almost identical. It provides active practice and immediate knowledge of results. The trainees learn by doing and can know almost immediately whether or not an error has been committed. This feedback can come from the trainer, from co-workers, or from seeing defective units.

Although OJT can work, often it turns out to be a terrible mistake! This usually happens when an organization uses it to avoid the necessity of designing systematic training programs. Too often, OJT is implemented by simply telling an individual to "train John" with little concern for the trainer's willingness or ability to train someone else. We offer the following suggestions for implementing effective OJT programs.

1. The technique must be chosen in the first place because it is

actually considered to be the best strategy for training the particular skills needed.

2. The choice of trainers should be based upon their ability to teach and their desire to take on this added responsibility. Trainers will not necessarily be the most competent and experienced employees; these characteristics do not guarantee that a person has the ability to teach the job to somebody else.
3. Those skilled workers chosen as trainers should be trained in the proper methods of instructions.
4. Trainers should be convinced that the training of new employees in no way threatens their current job security, seniority, pay level, or shift status.
5. The individuals serving as trainers should realize that this added responsibility will be instrumental in obtaining certain rewards.
6. Adequate evaluation of the trainee's progress needs to be made frequently and fed back to the trainee using reliable and valid measures.
7. Learning must take precedence over production, especially during the early stages of training.
8. There must be careful planning of the stages of learning by the trainer and staff training specialists.
9. Trainers and trainees should be carefully paired so as to minimize any differences in background, language, personality, attitudes, or age that may inhibit communication.
10. Trainees should be rotated if necessary to compensate for weaker instruction by some trainers and to expose each trainee to the specific know-hows of various workers.
11. It must be made clear to trainers that their new assignment is by no means a chance to get away from their own jobs and "take a vacation."
12. The organization must realize that there is a possibility that production may be slowed down, equipment damaged, and some defective products made.
13. The trainer must be made to realize the importance of close supervision in order to avoid trainee injuries.
14. OJT should be used in conjunction with other training approaches, such as programmed instruction, lectures, and films.

Apprenticeship

Organizations that employ skilled tradespeople, such as carpenters, plumbers, masons, printers, and sheetmetal workers may develop journeymen by conducting formal apprenticeship programs. The typical apprenticeship lasts anywhere from two to five years, with four years being the average length. It includes on-the-job training supplemented with about 144 or more hours per year of related classroom instruction held typically in the evenings at local high schools. The majority of apprentices attend these classes on their own time without pay. Each apprentice is usually given a workbook consisting of reading materials, tests to be taken, and practice problems to be solved. The workbooks permit the students to work at their own individual pace. The classroom instructors are either regular daytime vocational school teachers or skilled craftsmen (i.e., journeymen or supervisors). Many of them use class time for presenting lectures, giving demonstrations, conducting class discussions about actual work experiences, inviting outside speakers, presenting films, or providing skill practice (Strauss, 1968). For example, the school portion of an apprenticeship program for pipefitters might include local building codes, shop arithmetic, blueprint reading, and hydraulics. In general, apprentices learn how to do the work on the job and learn the facts of their trade in the classroom.

In past years, apprenticeship training has been the target of much criticism from civil rights groups and from personnel experts. Among the major criticisms have been that the training programs racially discriminate and show preferential treatment for relatives and friends. As a result of affirmative action requirements by various governmental agencies, much progress is now being made in reducing favoritism and alleged discrimination in apprentice admission procedures. Today, apprenticeship programs are developed by joint management-labor committees who are required to set forth affirmative action goals and timetables regarding the selection of women and minorities (Wexley & Latham, 1981).

Job rotation

A frequently used on-site training method is called job rotation. Trainees are placed in different jobs in different parts of the organization for a specified period of time. They may spend several days, months, or even years in different company locations. In this way they gain an overall perspective of the organization and an understanding of the interrelationships among its departments or divisions. The method is often used with college graduates who have only a vague idea about where in the organization they want to work. Job rotation helps them to sharpen their career objectives before settling on a permanent position. Rotation is also used to develop people for higher-level positions by exposing them to a wide range of experiences in a relatively short span of time.

Probably the major drawback of this method is the fact that it is time-consuming and expensive. One wonders whether it is really worthwhile from a cost/benefit standpoint. To maximize the method's effectiveness, trainees must be placed in company locations where they receive maximum feedback, reinforcement, and monitoring of their performance by competent and interested trainers.

OFF-SITE METHODS

In the previous section, we discussed on-site training methods that are frequently being used in organizations. Now, we will review several off-site approaches. One obvious advantage of these methods is that they allow the trainee to learn new things away from the daily pressures of the job. For example, a powerhouse trainee can learn his/her new job without worrying about a boiler explosion and stress due to occasional equipment breakdowns by learning boiler operations on an equipment simulator. Another benefit of off-site training is the use of highly competent outside resource people who often serve as trainers. Such people may include technicians, consultants, and university faculty. The major drawback of all off-site training is of course the problem of zero or negative transfer of learning. Specifically, five off-site methods will be discussed.

Lecture

Considered in relation to the traditional learning principles, the lecture method appears weak. There is little opportunity for active practice, reinforcement, overlearning, knowledge of results, or transfer of learning. In addition, because all people involved must receive exactly the same training, the method cannot readily adapt itself to individual differences among trainees in their motivation, abilities, personality characteristics, and so on. Probably for these reasons and others, the lecture method has been downgraded and underestimated by authors (e.g., Bass and Vaughn, 1966; Korman, 1977) and by training directors alike. Table 17–1 summarizes the results of a survey conducted to determine how training directors of Fortune's largest 500 corporations rate nine different training methods for achieving each of six training objectives (Carroll, Paine, & Ivancevich, 1972). In general, the results show that the lecture with questions is ranked as *least* effective of all the nine training methods.

A review of the literature reveals that the bias and negative attitude toward the lecture method may not be completely warranted. In general, the research shows that the lecture is more effective for the acquisition of knowledge and has more participant acceptability than training directors believe (Carroll et al., 1972). For example, in

TABLE 17-1
Ratings of training directors on effectiveness of alternative methods for various training objectives

	Knowledge acquisition		*Changing attitudes*		*Problem-solving skills*		*Interpersonal skills*		*Participant acceptance*		*Knowledge retention*	
Training method	*Mean*	*Mean rank*	*Mean*	*Mean rank*	*Mean*	*Mean rank*	*Mean*	*Mean rank*	*Mean*	*Mean rank*	*Mean*	*Mean rank*
Case study	3.56[b]	2	3.43[d]	4	3.69[b]	1	3.02[d]	4	3.80[d]	2	3.48[e]	2
Conference (discussion) method	3.33[d]	3	3.54[d]	3	3.26[e]	4	3.21[d]	3	4.16[a]	1	3.32[f]	5
Lecture (with questions)	2.53	9	2.20	8	2.00	9	1.90	8	2.74	8	2.49	8
Business games	3.00	6	2.73[f]	5	3.58[b]	2	2.50[e]	5	3.78[d]	3	3.26[f]	6
Movie films	3.16[g]	4	2.50[f]	6	2.24[g]	7	2.19[g]	6	3.44[g]	5	2.67[h]	7
Programmed instruction	4.03[a]	1	2.22[h]	7	2.56[f]	6	2.11[g]	7	3.28[g]	7	3.74[a]	1
Role playing	2.93	7	3.56[d]	2	3.27[e]	3	3.68[b]	2	3.56[e]	4	3.37[f]	4
Sensitivity training (T-group)	2.77	8	3.96[a]	1	2.98[e]	5	3.95[b]	1	3.33[g]	6	3.44[f]	3
Television lecture	3.10[g]	5	1.99	9	2.01	8	1.81	9	2.74	9	2.47	9

a. More effective than methods ranked 2 to 9 for this objective at .01 level of significance.
b. More effective than methods ranked 3 to 9 for this objective at .01 level of significance.
c. More effective than methods ranked 4 to 9 for this objective at .01 level of significance.
d. More effective than methods ranked 5 to 9 for this objective at .01 level of significance.
e. More effective than methods ranked 6 to 9 for this objective at .01 level of significance.
f. More effective than methods ranked 7 to 9 for this objective at .01 level of significance.
g. More effective than methods ranked 8 to 9 for this objective at .01 level of significance.
h. More effective than method ranked 9 for this objective at .01 level of significance.

Source: Adapted from S. J. Carroll, F. T. Paine, and J. M. Ivancevich, "The Relative Effectiveness of Training Methods: Expert Opinion and Research," *Personnel Psychology* 25 (1972), pp. 495–509.

reviewing studies comparing programmed instruction with conventional lectures in industrial situations, it was concluded that most studies show neither statistically nor practically significant differences in favor of either approach when immediate learning and retention are considered (Nash, Muczyk, & Vettori, 1971). Similarly, reviews of studies comparing the lecture and group discussion (Buxton, 1956; Dietrick, 1960; Stovall, 1958; Verner & Dickinson, 1967) have shown them to be equally effective methods for acquisition of knowledge by college students. Several studies have even shown that some managers prefer the lecture to the more nondirective group discussion approach (House, 1962; Mann & Mann, 1959). Thus, it appears that the lecture can be an effective and, we might add, economical method of conveying information to sizable groups of trainees.

On the negative side, studies have shown that the lecture method by itself is not as effective as are such others as role playing and case study for changing attitudes, developing problem-solving skills, or improving interpersonal competence (Carroll et al., 1972). Using the lecture by itself in an attempt to achieve these training objectives is a sheer waste of time and money. The authors know of too many managers who have attended a company-sponsored lecture on such topics as "human relations" or "participatory management" and have left the lecture with no idea of how to apply what they have learned to their jobs.

Audiovisual techniques

With the rapid increase in the size of organizations and the continued technological changes affecting them, the live lecture may not be the most cost effective training method to handle the large number of people requiring training and retraining. New methods of training are needed to maximize the efficiency of training. In response to this need, some organizations have begun to use various audiovisual techniques, such as films, closed-circuit TV, audiotapes, and videotape recording. These methods allow a trainer's message to be uniformly given to numerous organizational locations at one time and to be reused as often as required (Wexley & Latham, 1981).

Contrary to popular opinion, there is substantial evidence to suggest that there are no significant differences in learning achieved using such audiovisual devices as TV and films instead of conventional live lectures. In one major review of 393 studies comparing the amount learned in TV courses and conventionally taught courses, there were no significant differences found in 65 percent of the comparisons. Of the remaining comparisons, 21 percent favored the television approach, and 14 percent favored live lectures (Schramm, 1962).

TV videotapes and films offer unique advantages over live lectures and should seriously be considered under the following circumstances:

1. There is a desire to illustrate how some event or procedure should be conducted over time. For instance, demonstrations of welding, soldering, cooking, and electrical wiring could be facilitated with the use of film or TV. Close-ups of apparatus and manual techniques, stop action, instant replay, and slow motion are options not available with live lecture.

2. There is a need to show events that cannot be enacted in the lecture setting (e.g., open-heart surgery).

3. The training is going to extend organization-wide and it is far too costly and time-consuming to ask the same instructors to travel from plant to plant or to assemble the trainees in one place. Instead, copies of the same TV tapes or films can be mailed to all plants at one time.

4. There is a need to provide trainees with immediate visual feedback of their behaviors. For instance, videotaped playback of a trainee's golf swing, sales presentation, or electrical assembly procedures has been found to enhance learning.

Programmed instruction

Programmed instruction (PI) is a training approach consisting of the following basic characteristics: (1) the training material is broken up into discrete steps or frames; (2) these frames are ordered in a logical sequence, which typically progresses from the simple to the complex; (3) at the end of each frame the trainee is asked to give a response that assesses his/her knowledge of the material in that frame; and (4) the trainee is given immediate feedback regarding the correctness of the response made. If the response is correct, the learner proceeds to the next frame; if the response is incorrect, the trainee's progress is held until the correct response is exhibited.

Incorporated into these elements of PI are many of the principles of learning we have discussed earlier.

1. Immediate reinforcement—a trainee is permitted to proceed to the next frame when the answer is correct.
2. Individual differences—each trainee proceeds independently at his/her own particular pace.
3. Active practice—trainees actively respond by answering questions, making decisions, and solving problems.
4. Knowledge of results—trainees are told the correctness of their responses immediately.
5. Meaningfulness of material—the units of information are "programmed" in the most comprehensible sequence for the subject matter at hand.

Several varieties of PI methods are currently being used in organizational settings (e.g., teaching machines and programmed books). An example of these programmed materials is presented in Figure 17–1. Some examples of current uses of PI in organizations include training sales representatives how to call on new customers and training mechanics how to repair cash registers and office machines.

What can be concluded about the effectiveness of this training approach? Nash, Muczyk, and Vettori (1971) reviewed the results of more than 100 studies using PI in industrial and academic situations. They concluded that the major advantage of PI is that it almost always reduces training time. Trainees can be taught the same amount of information as other methods in about one third the time. However, contrary to many hopes and expectations, PI procedures do not appear to improve training performance in terms of immediate learning or retention over time compared with conventional methods.

The costs of developing PI materials are substantial. It is not unusual for a new industrial program to cost anywhere from $100,000 to $200,000—especially when it is fairly complex and involves equipment (Nash et al., 1971). The crucial question for any organization contemplating PI is whether the costs involved in the purchase and/or development of PI materials will be returned in the savings in training time. This will of course depend upon several factors, such as number of people to be trained, the type of PI installation proposed, and amount of training needed for each individual.

Computer-assisted instruction

One of the newest developments in instructional methodology is computer-assisted instruction. An individual interacts directly with a computer by means of electronic typewriters, pens that draw lines on cathode-ray tubes, and devices that present auditory material (Goldstein, 1974). The computer is capable of assessing the trainee's progress and adapting to his/her particular needs by virtue of its remarkable storage and memory capacities.

Let us examine two examples of CAI applications in organizational settings. British Airways trains reservation agents to handle the company's worldwide reservation system by using CAI. IBM trains newly hired electronic technicians in basic data processing principles using a keyboard-operated terminal device linked to a computer system (Wexley & Latham, 1981).

The results of research thus far suggest that CAI requires less time to teach the same amount of information than more conventional methods and that trainees react favorably to this method of instruction (Goldstein, 1974).

FIGURE 17–1
An example of programmed instruction

	Directions: Beside the first frame place a strip of heavy or dark paper that covers the left-hand margin. Read the first frame and write your answer in the space provided; then slide the paper downward just enough so that the correct answer is exposed. After ensuring that your answer(s) to the first item is correct, complete the second frame. Repeat this procedure throughout the program.
small	1. Programmed instruction involves several basic principles of learning. One of these, called the principle of *small steps,* is based on the premise that new information must be presented in ______ steps.
small steps	2. The learner gradually acquires more and more information, but always in ______ ______.
active	3. Because active readers generally acquire more knowledge than passive readers, programmed instruction also is based on the principle of *active participation.* Writing key words as one is reading involves the principle of ______ participation.
active participation	4. While reading a book, an uninterested learner may slip into a passive state and discover that he cannot recall what he has just "read." In using programmed instruction the learner is prompted to remain alert by writing the key words, thus utilizing the principle of ______ ______.
small steps active participation	5. In these two techniques of programmed instruction, information is presented in ______ ______, and occasionally key words are are missing, thus requiring the learner's ______ ______ to complete the statements.
knowledge	6. A third principle, *immediate knowledge of results,* is illustrated when a professor returns quiz papers to students at the end of the class in which they were written. These students receive almost immediate ______ of results.
	7. A student who makes an incorrect response at any point in programmed instruction discovers the mistake because the correct answer may be

FIGURE 17–1 *(concluded)*

immediate of results	seen immediately after the frame, before the next one is considered. Thus, in programmed instruction, the learner receives ________ knowledge ____ ________.
immediate knowledge of results	8. Notice that in programmed instruction, unlike the evaluation of term papers, "immediate" does not mean a week or even a day but rather a few seconds. The reader of the program is continuously informed concerning progress; he/she receives ______ ________ ____ ______.
small steps active participation immediate knowledge of results	9. Let us review the three techniques of programmed instruction already considered. By means of ______ ________, the reader learns new material, which he/she acquires through ________ ________ followed by ________ ________ ____ ________.
review	10. At this point, the fourth principle, *review*, already is apparent to the reader. Since new information may interfere with the recall of previously acquired information, earlier material is periodically repeated in programmed instruction. Thus programming techniques also involve the principle of ________.
small steps active participation immediate knowledge of results review	11. On Sundays many coaches show their players movies of Saturday's game. Each play is seen in slow motion, a procedure which suggests the technique of ______ ________. As the films are shown, various team members are asked to make comments about the plays. This procedure requires ______ ________ on the part of the players. The coaches do not wait until the middle of the next week to show the films because the players profit most from ________ ________ ____ ________. Sometimes the movies are shown two or three times before the next practice, and often a single play is rerun several times. This procedure is similar to the programming technique of ________.
	12. List the four programming techniques below:
small steps	1. ________________
active participation	2. ________________
immediate knowledge of results	3. ________________
review	4. ________________

Source: Adapted from N. L. Munn, L. D. Fernald, Jr., and L. Carmichael, *Introduction to Psychology* (Boston: Houghton Mifflin, 1972), pp. 249–50.

Equipment simulators

Simulation is an approach that replicates certain essential characteristics of the real world organization so that trainees can react to it as if it were the real thing and, consequently, transfer to their jobs what has been learned. Employees can learn to operate such complex equipment as airplanes and boilers free of danger to themselves and co-workers, practice emergency procedures before they are exposed to danger on their jobs, try out new interpersonal behaviors in a relatively safe psychological climate, and practice new behaviors and receive immediate knowledge of results (Goldstein, 1974).

Sometimes it is too costly, inefficient, or just plain dangerous to teach an individual or team of individuals motor skills while on the job itself. In these cases, facsimilies of the equipment are set up away from the actual work situation with hazards removed, pressure for results minimized, individualized feedback increased, and opportunity for repeated practice provided. The trainee does not have to worry about damaging expensive company equipment (assuming that the simulator is less expensive than the actual equipment), slowing down the normal productive process, or being embarrassed by making errors in the presence of future co-workers.

Listed below are several examples of equipment simulators currently being used by organizations. Two things should be noted. First, they range from simple mock-ups to computer-based simulations of complete environments. Second, some are utilized to train single individuals, and others are used for team training.

Machine mock-ups for training press and lathe operators.
Automobile simulators for driver education.
Airplane cockpits for training pilots and flight crews.
Thirty-foot utility poles with special safety harnesses for training telephone company personnel.

In designing simulators, it is important to facilitate positive transfer of training by having a close correspondence between the simulator and the actual work situation. Simulators must possess both physical fidelity (representation of the essential physical components of the job) and, even more important, psychological fidelity (representation of the essential behavioral processes necessary to do the job). There are no shortcuts to obtaining fidelity. It can be achieved only through careful analyses, testing, and retesting (Goldstein, 1974). Because of this, skill development via simulators is usually quite an expensive undertaking. An organization must seriously consider the cost/benefit ratios before attempting to develop equipment simulators.

METHODS OF MANAGEMENT DEVELOPMENT

We will now discuss some of the more popular methods used for developing managers.

Although management development and organization development (see Chapter 12) overlap greatly, the two areas are different. Organization development is an organization-wide effort designed to increase organizational effectiveness and health by changing such things as structure, cultural norms, climate, intergroup collaboration, motivation, and managerial strategy (Beckhard, 1969). Management development is a narrower concept concerned mainly with improving the effectiveness of individual managers (Strauss and Sayles, 1972).

Some of the conventional training methods, such as lectures and job rotation, have some value as management development techniques. These methods have been used for training in a wide variety of subjects including human relations, problem solving, decision making, company policies and practices, communications, and supervision. The emphasis in this section will be on some of the more common on-the-job and off-the-job techniques used primarily in management development programs.

Case study

The case study method was initiated at the Harvard School of Business and involves presenting a trainee (typically a manager or supervisor) with a written description of an actual or hypothetical organizational problem. The trainee is given time to study the case privately and to prepare a solution. Then, the individual meets with other trainees, and as a group they discuss the various solutions proposed and attempt to answer questions such as What basic managerial principles underlie this case? How might this problem have been avoided? What should be done to prevent this situation from reoccurring? The kinds of problems used vary in length and difficulty depending upon the skill and experience level of the trainees involved.

This method has the following intended purposes: (1) to show that there is usually no single or easy solution to complex organizational problems, (2) to show how rarely two trainees view a case in exactly the same way and arrive at the same solution, (3) to help trainees discover for themselves certain managerial principles, and (4) to help them develop their skills in diagnosing organizational problems. How closely these objectives are met depends greatly upon the skill of the trainer who must encourage the participation of all trainees and emphasize the discovery of underlying principles rather than quick solutions.

Critics of this technique point to its inability to teach general principles and its lack of guided instruction concerning the inferences that trainees draw from their case discussions (Campbell, Dunnette, Lawler, & Weick, 1970). Nevertheless, survey results indicate that the case method is considered by training directors to be the best method of developing problem-solving skills (Carroll et al., 1972). Unfortunately, research on the effectiveness of this method of training is limited in number and restricted to college populations. The research that has been done suggests the following: (1) Business games lead to higher performance than case studies on such measures as final written examinations and standardized cases (McKenney, 1962; Raia, 1966); (2) trainees may grow tired of case study after being exposed to it for a while (Castore, 1951) and find other methods more involving and interesting; and (3) there is more evidence showing that role playing develops problem-solving skills than there is evidence for the case study method.

A recent study (Argyris, 1980) based upon observations and audio recordings taken during a three-week management development program uncovered several additional limitations of the case study method. First, trainers tend to dominate the classroom interactions by advocating their own positions, asking questions, and making links between trainees' responses. This often increases trainee dependence on the trainer and ignores issues important to the trainees. Second, trainers often act to save embarrassment for the participants and themselves, which interferes with the candid generation of new ideas. Third, trainees often see an incongruity between the trainer's behavior and what he or she espouses. For example, a trainer might claim that there are no right or wrong answers. Yet, the trainer may take a strong position on certain issues! Finally, few trainers do an adequate job of relating what the trainees are learning in the classroom to their behavior in their organizations. To improve this method, Argyris argues that participants should read cases whenever possible from their own organizations; trainers should not dominate the discussion; and trainees must have a chance to discuss how they can apply what they are learning to their own jobs.

Conference (discussion) method

The conference method is essentially a small-group discussion in which the leader plays a neutral role providing guidance and feedback. The participants take an active role in the discussion and get feedback regarding their individual actions and attitudes from the other participants and the leader. The purpose of the planned meeting is for the group to discuss a particular topic selected by the leader or by the participants themselves (Campbell et al., 1970).

The object of the conference method is basically threefold (McCormick & Ilgen, 1980): (1) developing the decision-making and problem-solving skills of personnel, (2) presenting new and sometimes complicated material, and (3) changing or modifying attitudes. It is often used in organizations to teach such things as effective communication, general approaches to problem solving and decision making, sales training, safety education, and supervisory human relations.

According to training directors, the conference method is superior to the lecture in modifying attitudes (Carroll et al., 1972). Their opinion is well confirmed by several research studies showing that the discussion method is more effective than the lecture in changing adult behavior (Bond, 1956; Butler, 1966; Levine & Butler, 1952; Lewin, 1958; Silber, 1962). On the other hand, at the present time there is no research supporting the claim that the discussion method leads to a better understanding of new information or that it improves decision-making and problem-solving skills.

One problem with this method is its restriction to small groups and therefore, its high cost. Nevertheless, this method of training incorporates active participation, reinforcement, and immediate knowledge of results. Its effectiveness depends greatly on the discussion leader's skill, education, and personality (Bass & Barrett, 1981). An untrained discussion leader can easily make a successful conference into an authoritarian lecture resulting in participants resisting all attempts to modify their behavior.

T-group (or sensitivity) training

The aim of T-group (*T* for *training*) training, sometimes called sensitivity training, is to improve the interpersonal behavior of managers. Although the objectives of T-group training have been stated differently by various people (e.g., Argyris, 1964; Bradford, Gibb & Benne, 1964; Schein & Bennis, 1965), its goals have been neatly summarized by Campbell, Dunnette, Lawler, and Weick (1970, p. 239) as follows:

> Goal 1: To give the trainee an understanding of how and why he acts towards other people as he does and of the way in which he affects them.
>
> Goal 2: To provide some insight into why other people act the way they do.
>
> Goal 3: To teach the participants how to "listen," that is, actually hear what other people are saying rather than concentrating on a reply.
>
> Goal 4: To provide insights concerning how groups operate and what sorts of processes groups go through under certain conditions.
>
> Goal 5: To foster an increased tolerance and understanding of the behavior of others.

Goal 6: To provide a setting in which an individual can try out new ways of interacting with people and receive feedback as to how these new ways affect them.

Some T-groups put more emphasis on the goals of enhancing an individual's self-awareness and sensitivity to other persons, and other programs concern themselves more with emphasizing the trainee's understanding of group processes. Regardless of the particular emphases sought, most T-groups have similar processes and structural characteristics. The excerpt below provides a good description of the typical T-group procedure:

> At the fifth meeting the group's feelings about its own progress became the initial focus of discussion. The "talkers" participated as usual, conversation shifting rapidly from one point to another. Dissatisfaction was mounting, expressed through loud, snide remarks by some and through apathy by others.
>
> George Franklin appeared particularly disturbed. Finally pounding the table, he exclaimed, "I don't know what is going on here! I should be paid for listening to this drivel? I'm getting just a bit sick of wasting my time here. If the profs don't put out—I quit!" George was pleased; he was angry, and he had said so. As he sat back in his chair, he felt he had the group behind him. He felt he had the guts to say what most of the others were thinking! Some members of the group applauded loudly, but others showed obvious disapproval. They wondered why George was excited over so insignificant an issue, why he hadn't done something constructive rather than just sounding off as usual. Why, they wondered, did he say their comments were "drivel"?
>
> George Franklin became the focus of discussion. "What do you mean, George, by saying this nonsense?" "What do you expect, a neat set of rules to meet all your problems?" George was getting uncomfortable. These were questions difficult for him to answer. Gradually he began to realize that a large part of the group disagreed with him; then he began to wonder why. He was learning something about people he hadn't known before. ". . . How does it feel, George, to have people disagree with you when you thought you had them behind you? . . ."
>
> Bob White was first annoyed with George and now with the discussion. He was getting tense, a bit shaky perhaps. Bob didn't like anybody to get a raw deal, and he felt that George was getting it. At first Bob tried to minimize George's outburst, and then he suggested that the group get on to the real issues; but the group continued to focus on George. Finally Bob said,"Why don't you leave George alone and stop picking on him. We're not getting anywhere this way."
>
> With the help of the leaders, the group focused on Bob. "What do you mean, 'picking' on him?" "Why, Bob, have you tried to change the discussion?" "Why are you so protective of George?" Bob began to realize that the group wanted to focus on George; he also saw that George didn't think he was being picked on, but felt he was learning something about himself and how others reacted to him "Why do I

> always get upset," Bob began to wonder, "when people start to look at each other? Why do I feel sort of sick when people get angry at each other?" . . . Now Bob was learning something about how people saw him, while gaining some insight into his own behavior (Tannenbaum, Weschler, & Massarik, 1961, p. 123).

The controversy over the effectiveness of this approach during the past 20 years can be described as heated. Critics of T-group education (e.g., House, 1967; Odiorne, 1963), have made the following comments:

1. Not a single piece of research has been reported which proves that T-groups change the effectiveness of trainees back in their organizations. This is inconsistent with the business and money-making world in which we live.
2. There are no selection standards for admittance. Any person with the registration fee can attend. The manager may already be sensitive and aware, in fact he may be too sensitive for his particular kind of organization and subordinates.
3. There are anecdotal reports of individuals having serious emotional breakdowns and needing psychiatric care as a result of participating in T-groups. As Kirchner (1965, p. 212) states:

   > Do we really want to rip off the "executive mask," which hides from the individual his true feelings, desires, and knowledge of self? Most people have taken many years to build up this "mask" or to build up their psychological defenses. While it can be enlightening to find out that nobody loves you and that some people think you have undesirable traits, this can also be a very shocking experience to individuals and not necessarily a beneficial one.

4. In most labs, the trainers have only a vague notion of how to conduct their groups. They have little idea of the objectives of individual sessions, and are unable to do any careful planning so that progressive stages of development will occur. They are also not professionally qualified to deal with these emotional learning sessions that deliberately induce anxiety, interpersonal feedback, and experimentation with new modes of behavior.
5. Not only are the trainees unaware of what the outcomes of training will be; but, since there are no controls and anything can happen, the trainers are, too.
6. The objectives of T-group training are often stated in such vague terminology as developing the manager "to feel" . . . "to relate" . . . "to understand" . . . "to be sensitive." Little behavior terminology is used to describe what the trainees will do, do differently, or stop doing as a result of training.
7. Since the effectiveness of the method has not yet been proven and

possible damages may be severe, it is unethical to offer T-groups on a commercial basis and to make claims about its beneficial effects on management practices.

8. It is an invasion of personal privacy and not rightfully within the domain of organizations, consulting firms, and business schools.
9. Even if T-group training could result in more considerate, sensitive, and supportive managers, there is no guarantee that these characteristics are beneficial in all organizational contexts.
10. Organizations coerce their members into attending T-groups. It is not uncommon among organizations to administer training to entire departments or divisional units. Superiors often "suggest" to subordinates that they attend.

In defense of laboratory education, Argyris (1963) has provided the following facts about T-group training as he sees them.

1. More research has been conducted on T-group education than all other management development programs combined.
2. Psychotic breakdowns at NTL is no more frequent than in the population at large. Out of over 10,000 cases, there have been only four trainees who have had nervous breakdowns, and all of these people had previous psychiatric histories.
3. In order for someone to become an NTL trainer, he/she must have completed an approved graduate training (usually a Ph.D.) program. The individual is then put through a rigorous three-month training program which entails participating as a member of a laboratory program, conducting labs under the supervision of a senior faculty member, attendance at special meetings, and final approval by one's peers.
4. At NTL, the staff usually meets for three days, several months before each lab to plan it and develop assignments to work on back at home. Later on, another few days are spent on additional planning.
5. Lab training at NTL does have objectives. Before every laboratory, hours are spent discussing these objectives.

Putting this controversy aside, what conclusions can be reached about the effectiveness of T-group training as a result of research evidence? First, the evidence is reasonably convincing that T-group education does bring about changes in the "back home" behaviors of participants. There is still some problem specifying the exact nature of these changes, since they seem to differ for various individuals. Despite this, it does appear that many of the group changes found in studies are in line with some of the main objectives of T-group training, namely, increased sensitivity, more open communication, and more flexibility in role behavior (Campbell & Dunnette, 1968). At the present time, these behavior-change studies form the main evidence supporting the organizational utility of laboratory training. Unfortunately, there is no convincing evidence that these behavior changes result in any tangible profits for the organization.

In our opinion, if T-group training is to be utilized in organizations, the following is needed:

1. Voluntary participation and withdrawal of all participants.
2. Careful selection, training, and licensing of T-group leaders.
3. Screening of participants by means of qualified judges and/or psychometric instruments. This screening must take into consideration the individual's emotional state, need for this type of training, and back-home situation.
4. Clarification of the training objectives in behavioral terms.
5. Continued research to study the effectiveness of this approach using both behavior and results measures (see Chapter 13).

Management games

Games are used today in industrial, government, and educational organizations. They are found in management development programs, business school courses, and the military. Imperial Oil has a game for training managers of service stations; the Pillsbury Company has one to train top-level managers in new divisionalization and decentralization policies; the air force has a game developed for them by the Rand Corporation in which players must schedule aircraft expenditures, personnel, parts, and equipment; universities such as Stanford and UCLA offer thousands of students the opportunity to participate in a wide variety of business games. The objectives of most games are to:

1. Teach such general management skills as decision making, setting of priorities, long-range planning, and effective use of time, personnel, and equipment.
2. Convey information about how various parts of a complex organization operate and interact.
3. Provide an appreciation of the range of factors that must be considered in making wise decisions.
4. Experience the consequences of making decisions that are too hasty, too slow, too risky, or too conservative.
5. Realize the importance of dealing effectively with others.

It would be helpful at this point to give a brief description of a typical management game for the benefit of those readers who have not yet participated in one. The basic procedures of play are similar for most existing games. The following general description of management games by Kibbe, Craft, and Nanus (1961) is based on the Remington Rand Univac Marketing Game:

> The game session begins with a briefing. At this time the instructor describes for the participants the type of company they are about to manage, the economic environment, the general nature of the products, and the competitive forces they will face. The scope of their authority, the functions to be filled, the decisions to be made, and the information they will receive are all discussed. In addition the mechanics of play, the purpose of the exercise and the manner in which it relates to the entire educational program are covered.
>
> After the briefing the participants meet with the other members of their management team. In a typical game, involving perhaps 40 to 50 executives, there might be six teams, each with seven or eight members. The management teams determine their organization, set objectives, decide on the short- and long-range plans necessary to achieve these objectives, and introduce necessary controls and procedures. Typical organizational structures evolve, with presidents, vice presidents, etc. In addition to the obvious desire to maximize net profit, other objectives will be set concerning share of market, stabilized production, inventory control, and personnel policies.
>
> Games are played in periods, each period being a day, week, month, quarter, or year, depending on the particular game. The Univac Marketing Game takes place in months. The participants have already received operating reports for December and begin by making decisions for January. A variety of other pertinent information, such as a case history, sales forecast, and reference material on operating costs, production facilities, and shipping times is provided. Usually all companies begin in the same condition.
>
> The teams make decisions for January, these are processed by the computer, and operating reports for January are then returned. In most game sessions, management has about a half hour in which to make decisions. Play continues for a simulated year.
>
> In the Univac Marketing Game, each company manufactures one product. All are competing in three regions comprising a common market. The managers set price, spend money on advertising, hire and fire salesmen, set salesmen compensation rate, set production level, engage in special market research projects, etc. The operating reports show the sales obtained, the net profit achieved, and an accumulated year-to-date net profit.
>
> Management is trying to achieve the largest possible net profit, and the team that obtains the greatest accumulated profit is often called the "winner." Good performance in a management game, however, as in a real business, is dependent on many factors, such as return on investment, share of market, personnel policies, and the numerous aspects of the company which determine whether it will continue to succeed.
>
> While the participants are busily engaged in operating their companies, other people are observing their performance. Some of these may be guests or visitors, but others may have been specifically selected to

> follow the proceedings so as to be able later to provide feedback on the human interactions evidenced. These observers may themselves be members of the training course, or may be specially invited social scientists. In some cases elaborate facilities are available for observing and recording the actions of the participants.
>
> At the end of the game play, which may well simulate from 6 to 16 months, a discussion session takes place. This "critique" session is held to focus attention on the lessons which were to be taught. The participants have the opportunity of reviewing their performance, discussing management principles with other members of the group, and receiving feedback from the game administrator and observers. Very often the critique takes the form of a report to the "board of directors" and is guided along specific channels by a previously prepared checklist. (*Management Games: A New Technique for Executive Development* J. M. Kibbee, C. J. Craft, and B. Nanus [New York: Reinhold Publishing Corporation, 1961], pp. 4–6.)

Games may be quite complex, or, as in the case of those used in assessment centers (see Chapter 14), extremely simple. In some games, computations are made manually or by electronic calculator; in other games, the complexity of the model requires that the results be analyzed and fed back to the trainees by computer. In these computer-based games, a larger number of realistic variables (e.g., strikes, delays of raw materials, new competition, shortages of labor) can be introduced.

There are several advantages of management games. They provide trainees with the opportunity to learn from experience without actually suffering the real-life consequences of poor decisions. They compress time, thereby providing trainees with many years of management experiences in just a few short days. The games are also intrinsically motivating for the participants due to their realism, the dynamic nature of play, and the immediacy and objectivity of the feedback.

The technique is not without its limitations. Sometimes participants become so motivated and concerned with "beating the system" that they fail to comprehend the principles of management being taught. Others have complained that the method stifles creative approaches to solving problems and that it is too costly compared with other management development techniques. Finally, little scientific research has been done thus far to investigate the effectiveness of this technique. Most of its current popularity stems from its face validity and the persuasiveness of its advocates.

Junior boards

The concept of the junior board of directors, or "multiple management" as it is sometimes called, was introduced by Charles P.

McCormick in 1932 at the McCormick Company in Baltimore. The purpose of these boards is to permit promising junior executives to experience some of the problems and responsibilities faced by high-level managers in their organization. The board is ordinarily permitted to study any problems faced by the organization and to make recommendations to the senior board of directors (i.e., the official board elected by the stockholders). The junior board serves in an advisory capacity, and the senior board is under no obligation to accept its recommendations. Junior board members get experience in aspects of the business outside their own specialty as well as practical experience in group decision making and teamwork (Beach, 1980). Typical problems faced by junior boards include interdepartmental conflicts, organization structure, executive compensation, and personnel procedures (Wexley & Latham, 1981). Described below is how one organization solved an important problem by means of its junior board:

> A company had tentatively considered opening a factory in France or Germany to produce a health drink based on certain soft fruit. There were a number of important matters to be explored before a decision could be made: the market potential, the availability of the right kind of fruit, the effect of cultural differences on the product's acceptability, the costs of production and marketing. It asked the junior board to put up a plan on how it would go about investigating the problem in order to produce a recommendation. This plan was accepted and the board was given the further task of completing the investigations and recommending appropriate action (Roberts, 1974, pp. 93–94).

Understudy assignments

Some organizations assign their management trainees as understudies to senior executives. An understudy relieves the superior of some duties, thereby learning the superior's job and the superior's unique methods for handling it. As mentioned previously, the benefits that the trainee derives from this type of on-the-job learning depends upon the willingness and ability of the superior to teach effectively. Understudy assignments ensure that the organization will have trained personnel immediately available to take over certain key positions as managers vacate them due to retirement, promotions, or transfers.

Role playing

Instead of just presenting a problem for discussion, role playing requires the trainees to play out the parts of various characters in the case. Participants are told to imagine themselves in the situations created for them by the trainer and to try to take on the feelings and attitudes of the people they are pretending to be. Once the role playing is begun, interactions among participants are spontaneous. A critique session follows immediately after the playing of the problem. Some trainees find it difficult to get into their roles at first because they feel self-conscious or because they tend to overact. With proper orientation by the trainer, this problem usually disappears after a short while.

There are several variations of the role-playing method. The two most widely used are role reversal and multiple-role playing. In role reversal trainees who have differences of opinion are asked to exchange roles. For example, supervisors and union stewards, superiors and subordinates, or even two opposing managers reverse roles in order to give them the feel of experiencing and solving problems from viewpoints other than their own. It is hoped that differences in opinions will be reduced by making each person more aware of the other's needs and attitudes. It has been demonstrated that when a person is forced to verbalize opinions opposite to his/her own and defend these opinions to others, the individual's own private attitudes are modified in the direction of the role being played (Janis & King, 1954; Janis & Mann, 1965). This is true regardless of how much the trainee is satisfied with his/her role-playing performance (King & Janis, 1956). The important point here seems to be that the trainee privately shifts attitudes so that they are consistent with what he/she is saying (Kelman, 1953).

In multiple-role playing a large number (usually 20 to 30) of trainees are divided into small groups of 5 or 6 persons each. The trainer presents a problem, and each of the subgroups is asked to role play. Following the role playing within groups, the entire group of trainees is reassembled to share and compare their experiences (Maier & Zerfoss, 1952). It should be noted that multiple-role playing is quite economical, since many individuals can be trained at the same time. In addition, the various teams can be given systematically different directions (unknown to them), so that the effects of these differences will be dramatically revealed during the final discussion session (Bass & Barrett, 1981). For instance, different communication networks might be established in each of the groups resulting in some rather distinct differences in problem solutions and member satisfactions between groups.

More evaluative information is urgently needed on role playing. At the present time, role playing has been shown to be effective in studying small-group leadership skills (Maier, 1953; Maier & Hoffman, 1960; Maier & Maier, 1957), increasing sensitivity to the motivation of others (Bolda & Lawshe, 1962), improving interviewing skills (Van Schaack, 1957), enhancing ability to develop innovative solutions to human relations problems (Solem, 1960), and modifying attitudes (Culbertson, 1957). The method provides opportunity for practice and does a good job of bridging the gap between "knowing" and "doing" so seldom seen with other management training approaches.

Two problems with this method deserve mention. It is true that it provides the trainee with both immediate reinforcement and knowledge of results. However, since trainees receive feedback primarily from the other role-playing participants rather than from the trainer, it is possible for a trainee to behave inappropriately from an organizational viewpoint and still be reinforced for this behavior by the others. Second, managerial personnel have indicated only fair acceptance of this method of training (Bolda & Lawshe, 1962). In light of these problems, the authors would recommend that role playing be used in collaboration with other management development methods, such as appraisal feedback, goal setting, case study, and lecture.

Behavior modeling

Social learning theory holds that most human behavior is learned observationally through modeling. By means of observing others, a person forms an idea of how behaviors are properly performed as well as their effects. Since people can learn by example from others, this spares them needless trial-and-error learning.

Impressive empirical support for social learning theory has been obtained in well-designed studies in experimental and clinical psychology (Bandura, 1977). Thanks to the pioneering work of Goldstein and Sorcher (1974), social learning theory has been used more and more for changing employee behavior in work organizations (Burnaśka, 1976; Byham, Adams, & Kiggins, 1976; Moses & Ritchie, 1976; Smith, 1976). When social learning theory is applied in industrial training programs, it is commonly referred to as "behavior modeling." For example, Latham and Saari (1979) used behavior modeling to improve the interpersonal and communication skills of supervisors in dealing with their employees. Their nine training sessions focused on the following topics: (1) orienting a new employee, (2) giving recognition, (3) motivating a poor performer, (4) discussing poor work habits, (5) discussing potential disciplinary action, (6) reducing absenteeism, (7) handling a complaining employee, (8) reducing turnover, and (9) overcoming resistance to change (Goldstein & Sorcher, 1974). The trainees met for two hours each week for nine weeks. Each training session followed the same format:

1. Introduction of the topic by the trainers.
2. Presentation of a film that depicted a supervisor model effectively handling a situation by following a set of three to six learning

points that were shown in a film immediately before and after the model was presented.

3. Group discussion of the effectiveness of the model in exhibiting the desired behaviors.
4. Actual practice in role-playing and the desired behaviors in front of the training class.
5. Feedback from the training class on the effectiveness of each trainee in demonstrating the desired behaviors.

In each practice session, one trainee assumed the role of supervisor and the other assumed the role of an employee. The trainees were asked to recreate an incident relevant to the film topic that happened to one or both of them within the past year.

The learning points presented in the film were posted in front of the trainee playing the role of supervisor. Examples of the learning points for handling a complaining employee were:

> (1) Avoid responding with hostility or defensiveness; (2) ask for and listen openly to the employee's complaint; (3) restate the complaint for thorough understanding; (4) recognize and acknowledge his or her viewpoint; (5) if necessary, state your position nondefensively; and (6) set a specific date for a follow-up meeting. (Latham & Saari, 1979, p. 241).

At the end of each of the nine training sessions, the trainees were given copies of the learning points and asked to try to apply them to their jobs during the following week. They were also asked to report their experiences in applying these learning points on their jobs at the next training sessions.

To further ensure positive transfer of learning (see Chapter 16) of learning points from the training situation to the job situation, the trainees' superiors attended a program designed to teach them the importance of praising a supervisor whenever the individual exhibited the learning points back on their jobs. Latham and Saari's rigorous evaluation of this program indicated that it had desirable effects on trainee reaction, learning, behavior, and performance criteria.

Additional management development approaches

There are many commercially available management development approaches that use a combination of various training methods discussed in this chapter. Typical of these approaches are Fiedler's Leader-Match, Kepner-Tregoe's Rational Manager Training and Telos Training, Miner's Role Motivation training, and McClelland's Achievement Motivation training. Some of these management development approaches are based on recent findings regarding leadership effectiveness. For more information about these approaches, the reader is referred to Wexley and Latham (1981).

SPECIAL TRAINING CONCERNS

In this final part of the chapter, we will discuss two special training concerns. The first involves the orientation and socialization of employees who are newly hired, promoted, or transferred. The second concern is the career counseling and guidance of current employees.

Orientation training and socialization of new employees

Getting new employees started in the right way is important. A poor orientation program can be financially damaging to an organization, since it can reduce employee effectiveness and contribute to their dissatisfaction and turnover (Gomersall & Myers, 1966).

Orientation training should be the joint responsibility of the training staff and the employee's immediate supervisor. Generally, the training staff should be responsible for providing information involving matters that are organization-wide and bear on all new employees. This will usually include information about the following things:

The organization in general (brief history, products/services, structure, etc.).
Compensation (pay scale, overtime, time clocks, when paid, holidays, vacations).
Benefits (insurance, retirement, credit union, recreational facilities).
Safety (first-aid facilities, fire protection, safety committees).
Union (name, joining procedures, current company-union contract).
Physical facilities (parking, cafeteria, entrances).
Company policies (uniforms, identification badges, sick leave, transfers).

The line supervisor should focus on those items of information unique to the employee's workplace. This will typically include the following kinds of things:

Department functions (objectives, activities, structure, dependence on other departments).
Duties of new job.
Departmental policies and procedures.
Department tour of facilities.
Co-workers.

In addition to this formal half-day or full-day orientation training, new employees go through a process known as organizational socialization (Schein, 1968). This entails learning the attitudes, standards, and patterns of behavior that are expected by the organization and the individual's particular subunit. This process of learning the ropes can be facilitated by providing new employees with the following:

1. A supportive trainer who reduces the individual's anxieties: "Will I be able to handle this job?" "How will I get along with my boss?" "Where do I start?" The training specialist emphasizes the high probability of success on the job as evidenced by previous statistics (Gomersall & Myers, 1966).
2. A challenging entry-level job that provides feelings of responsibility and authority and a supervisor who sets high, but obtainable, standards (Hall & Hall, 1976).
3. A realistic preview of both the favorable aspects of the job and the organization, but also some of the unfavorable aspects (e.g., relatively low cooperation from other departments, excessive time pressures, limited upward mobility) (Wanous, 1980).

Career development

Recently, some organizations have become aware that the effective management of human resources can be maximized through career planning activities (Hall & Hall, 1976). The primary goal of career development is to increase employees' awareness about themselves and their career aspirations. Most career development activities are conducted by the employee's supervisor or by members of the organization's training staff.

A career specialist can usually help an individual set realistic career objectives and plan a sequence of job steps for achieving them and can aid the person in overcoming personal problems that may be blocking goal attainment. One of the most frequent uses of career development today is concerned with handling exempt and nonexempt individuals who have been permanently layed off by their organizations. Numerous outplacement services are available to help these people make wise career decisions. Much of this involves identifying their aptitudes and interests through psychological testing, helping them to locate position openings, and providing them (and perhaps their families) with psychological support.

SUMMARY

On-site training methods include on-the-job training, apprenticeship, and job rotation. The major advantage of on-site training is that the problem of transfer of learning is basically eliminated. Trainees acquire the job skills, knowledge, and attitudes in the exact physical and social environment in which they will work once formal training is completed. The methods require no special equipment or space. Further, trainees produce while learning, thereby minimizing training costs. The most likely disadvantage of on-site training may be that employees acting as trainers are either not capable of or not interested in providing trainees with favorable learning experiences. This can be a particularly serious problem when certain employees are asked to train women or minority group members and do so halfheartedly!

Among the many off-site training methods that can be used are lecture, audiovisual techniques, programmed instruction, computer-assisted instruction, and equipment simulators. The most obvious advantage of off-site training is that it provides an environment conducive to learning away from everyday job pressures. For this reason, most management development programs are conducted away from the job setting. Another off-site benefit is the potential use of such outside resource people as retired executives, university faculty, and consultants who have expertise in particular subject areas. Its major drawback is the transfer problem. Too often trainees learn new facts and principles at lectures, workshops and conferences but have no idea how to apply what they have learned once they are back on their jobs.

The choice between using on-site versus off-site methods depends upon the job, the employees being trained, and the desired results (i.e., improved problem-solving skills, increased sensitivity, etc.). It is safe to say, however, that in most situations a combination of the two approaches would be most beneficial.

Management development programs became popular in the late 1940s and early 1950s. Prior to their establishment, individuals were responsible for obtaining their own managerial skills by working in their jobs or through whatever other learning experiences of which they could somehow avail themselves. Since World War II, management development programs have become an accepted and well-established personnel function in most larger firms and in many smaller ones as well. With the rapidly occurring technological and sociological changes confronting organizations today, it is essential that managers not let their jobs outgrow them. The problem of obsolescent executives can be avoided by organizations exerting continuous pressure on their managers to continue their self-development. The management development methods discussed in this chapter include case study, conference (discussion), T-groups, management games, understudy assignments, role playing, and behavior modeling. The chapter ends with a discussion of two special concerns: orientation training and career development.

REVIEW AND DISCUSSION QUESTIONS

1. Define or explain each of the following key terms: *multiple-role playing, role reversal, computer-assisted instruction, case study, behavior modeling, realistic job preview, outplacement services, apprenticeship, junior boards.*
2. What are the advantages and disadvantages of using programmed instruction in industrial training programs?
3. Describe each of the following methods for developing managers. Compare them with each other, and indicate which you prefer and why: understudy assignments, junior boards, T-groups.
4. Compare and contrast the relative effectiveness of on-the-job and off-the-job training methods.
5. Assume you have been asked by an organization to set up an on-the-job training program for jet engine mechanics. What would you do to maximize the effectiveness of this training?
6. Formulate an outline of a training program for a job with which you are familiar. Length and costs of the program are not important here. Make certain to choose the most appropriate methods for your particular training objectives.
7. What kinds of research breakthroughs would you like to see accomplished in the area of training methods and management development during the next ten years?
8. Describe the strengths and weaknesses of the lecture method.
9. Discuss the principles of learning that are incorporated into programmed instruction as well as the effectiveness of this method.
10. Equipment simulators must possess both physical fidelity and psychological fidelity. What does this mean?
11. The case study method is quite popular in industry and in many business schools. Describe the effectiveness of this management development method.
12. Suppose you have been asked by your company to develop an orientation training program for new hires. What particular things would you make sure to incorporate into this program to maximize its effectiveness?

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18

The work environment

So far in this textbook, we have discussed the manner in which the human resources department and management should handle the individual worker as well as groups of workers. We have also discussed the effects of the social environment on individuals and groups. We have not, as yet, discussed anything about the physical work environment in which individuals find themselves. It remains for us to consider in this last chapter the most obvious things affecting an employee's job performance, satisfaction, and motivation—the working conditions under which one performs his or her job.

Twelve characteristics of the work environment are discussed in this chapter. These topics are organized into the following four major headings: Human Factors Engineering and Design, the Scheduling of Work, Characteristics of the Physical Work Environment, and Improvement in the Work Environment. As you read this chapter, keep in mind all of the things you have learned in the past chapter about the individual employee. We say this because there will always be an interaction between the work environment characteristics and the physical and psychological state of the employee. For example, the effect of noise (a work environment characteristic) will depend upon the individual employee's age, loss of sleep, and anxiety level. Similarly, the effectiveness of a particular employee working in an open-plan office will depend upon his or her personal need for privacy and a setting free of distractions. In other words, we cannot really consider the work environment without also considering the particular employee.

As you will see, the industrial/organizational psychologist or personnel specialist who focuses on human factors engineering and design is responsible for implementing the ideas presented in this chapter. If you were to specialize in this particular discipline, you too would get involved in designing factories, offices, equipment, machinery, and jobs to optimize their effectiveness. A large part of your work would be concerned with the question, What is the best way to design the work environment in order to maximize the effectiveness, satisfaction, and motivation of individuals and groups?

HUMAN FACTORS ENGINEERING AND DESIGN

One important area of industrial/organizational psychology is known variously as human factors engineering, human factors, and ergonomics. The ideas presented in this section are based upon a book by McCormick and Sanders (1982). The objectives of human factors engineering are to enhance the effectiveness and efficiency with which the work is carried out and to maintain or enhance certain desirable human values, such as health, safety, and job satisfaction. The central approach of the discipline involves the application of information about human abilities, characteristics, behavior, and motivation. In short, human factors engineering can be most concisely defined as "designing for human use."

The current human factors field received its start in the military services with the design of airplane cockpits and combat equipment. Over the years, consideration of human factors has been extended to such other areas of application as the design of production machinery and processes, agricultural equipment, consumer products, facilities and equipment for the physically handicapped, space vehicles and control systems, highway systems, communications equipment, factory design, office layout, work-space design, and transportation equipment. To be more specific, the areas of application of human factors generally fall into three main classes: (1) man-machine systems, (2) physical environment, and (3) personal and protective items. A man-machine system consists of one or more physical components and one or more human beings interacting to bring about, from given inputs, some desired output. The simplest case of such a system could be a person with a hoe or a hammer. The next level of complexity of a man-machine system would be an automobile and driver or an office machine and its operator. More complex systems involve an airplane and its crew members, a telephone system with its equipment and employees, a chemical plant and its personnel, and a spacecraft together with its astronauts and ground crew.

A primary task of the human factors engineer is to optimize the functioning of man-machine systems. One of the main ways of accomplishing this end is to maximize human effectiveness in these systems.

Much of the work conducted by human factors researchers involves finding ways of improving the four basic functions humans perform in man-machine systems: sensing (i.e., receiving information), information storage, information processing and decision, and action functions. Those readers who are familiar with general psychology will quickly recognize that three of these functions (sensing, information processing, and action) represent what is usually referred to as the S → O → R (stimulus-organism-response) paradigm. These three functions comprise the vast majority of human functioning in the sense that a *stimulus* acts upon an *organism* to bring about a *response*. The work of human factors specialists can be best illustrated by using the family car as an example. On the stimulus side, they would get involved in designing the display panel on the dashboard so that the driver could read the instruments quickly and accurately. As for maximizing the effectiveness of the driver's ability to store and process information, they would consider such things as the proper sensory channels (e.g., visual or auditory), the discriminability of the signal (e.g., buzzer loudness, light brightness), and stimulus overload (e.g., presenting too much information, thereby causing confusion). On the response side, they might consider such things as the size, shape, color, location, and movement of controls (e.g., switches, pedals, knobs).

Two aspects of the physical environment interest human factors specialists. First, there is the physical space a worker uses, ranging from the immediate environment (e.g., a work station, an office desk, a dentist's chair) through the intermediate (e.g., an office, a factory), to the general (e.g., a highway system, an industrial complex, a shopping center). Second, there are various aspects of the surrounding environment that concern them. These factors include such things as illumination level, atmospheric conditions, and noise levels.

The final class of man-made things that people use consists of many types of personal items (e.g., power tools, lawnmowers, snow plows) and protective equipment and gear (e.g., safety shoes, goggles, astronaut suits, earplugs). Human factors people are involved with designing numerous personal products that consumers purchase as well as safety equipment.

As you will see, most of the topics covered in this chapter, such as noise, illumination, atmospheric conditions, robotics, and open-plan offices, will relate to the work of the human factors engineer. Sometimes this individual is called upon to work on a narrow aspect of the work environment, such as the proper placement and intensity of lighting in an office building. At other times, however, an entire team of human factors people might be called upon to design the cockpit for a new airplane or our latest spacecraft.

THE SCHEDULING OF WORK

Within the past few years, such alternative work arrangements as the four-day workweek, flexitime, and part-time work hours have generated much interest among unions, workers, and managers alike. In this section, we will start out discussing two of the most popular and interesting types of newer work schedules, namely, the compressed workweek and flexitime. We will then discuss a problem experienced by many rotating-shift workers and what some organizations are doing today to alleviate it.

Compressed workweek

The typical work schedule for most American workers involves eight hours a day/five days a week, for a 40-hour workweek. However, in the past 10 years many organizations have adopted what has become popularly known as the "4/40" (Poor, 1973). This is a compressed workweek in which employees work 10 hours a day for four days, and then get three days off. In this section we will discuss: (1) the advantages of the 4/40 schedule from both the employee's and organization's viewpoints, (2) worker acceptance of this schedule, and (3) its affects on productivity and worker fatigue.

The main advantage of the four-day workweek from the employee's perspective is that it allows for a three-day weekend. During this free time, employees can spend more time with their families and friends, devote more time to recreational and leisure activities, take on a second job, attend adult education classes at local community colleges and universities, and/or learn new occupations at vocational education centers. Some organizations have fewer overhead costs (i.e., heating, air conditioning, lighting), since they are only open four days per week instead of five. It is also anticipated that the 4/40 schedule will increase worker satisfaction, which will in turn decrease such indirect costs as absenteeism, tardiness, sabotage, theft, and grievances.

Employee acceptance of the four-day workweek is far from clearcut. Research studies can be cited that have found employee acceptance of 4/40 to be quite favorable (Ivancevich, 1974; Nord & Costigan, 1973; Poor & Steele, 1973), and other studies that have uncovered negative reactions (Ivancevich & Lyon, 1977; Mahoney, Newman, & Frost, 1975; Mullet, 1972). How can these conflicting findings be resolved? Recent research results suggest that acceptance of the compressed workweek depends upon certain characteristics of the particular employee as well as the individual's type of job. More specifically, it is possible to draw a profile of workers most likely to have positive 4/40 attitudes. They tend to be young, with a lower-level job and low income. Further, they have relatively low general job satisfaction, low satisfaction with their pay and the type of work they do, and low organizational commitment. They perceive both their work group and the total organizational climate as somewhat negative (Dunham & Hawk, 1977; Goodale & Aagaard, 1975; Wilson & Seltzer, 1971). These findings have led several researchers to speculate that the 4/40 schedule tends to be viewed most favorably when it is considered as a partial escape from an unpleasant work environment (Fraser, 1971; Wilson & Seltzer, 1971). However, it is important to keep in mind that these individual factors (in combination with organizational, environmental, and affective variables) have been found to account for only a small proportion (7 percent) of the variation in 4/40 attitudes among workers (Dunham & Hawk, 1977).

Other research has shown that continued acceptance of 4/40 is largely affected by employees' perceptions of changes in their jobs. An experimental 4/40 work schedule was initiated at a large metropolitan hospital (Fottler, 1977). Interviews were conducted to determine which particular job characteristics were related to acceptance of the 4/40 innovation. The most important factor found to differentiate between the "accept" and "reject" employee groups was perceived job upgrading. It appears that those employees who perceived the least amount of upgrading in their jobs as a result of 4/40 were most negative toward continuance, whereas those perceiving the most upgrading were most positive. Of course, this finding needs to be replicated in other types of organizations and additional hospitals before we can conclude that it generalizes across companies.

Surprisingly few studies have examined the effect of 4/40 on productivity. Once again the findings are mixed. A study by Calvasina and Boxx (1975) conducted in two wearing apparel factories found no improvement in employee productivity (i.e., the ratio of an employee's production divided by the time required for that production) as a result of changing from a 5/40 to a 4/40 workweek. Ivancevich and Lyon (1977) found that 13 months after the installation of a 4/40 schedule, workers were more satisfied with their autonomy, personal worth, job security, and pay. They also experienced less anxiety/stress and performed better with regard to productivity than did a 5/40 comparison group of operating employees in a medium-size manufacturing company. Unfortunately, when these results were examined over another 13-month period using another sample, all of the differences in performance between the five-day and four-day workweeks disappeared. These results taken over 25 months suggest that the 13-month gains due to 4/40 might have been due merely to a Hawthorne effect—basically, *any* change in the work environment will increase productivity temporarily. It is important to note, however, that at all factories surveyed in these studies, start-up and shutdown periods were insignificant factors. Workers controlled the pace of their own output, starting work at the beginning of their work period and stopping at its conclusion (Calvasina & Boxx, 1975). On the other hand, in those work situations in which the work process requires significant start-up and shutdown periods, the four-day workweek has been shown to bring about an increase in productivity even though the efficiency of the individual worker remains unchanged (Swierczewski, 1972). The improved productivity can be attributed to the fact that the more efficient work schedule reduces the number of start-up and shutdown periods. Of course, this has to be weighed against the possibility of increased fatigue over time due to 4/40 schedules. An excellent research study on the psychophysiological and physiological repercussions of a compressed 4/40 workweek was conducted by Volle, Brisson, Perusse Tanaka and Doyon (1979). Two groups of workers from two different factories (4/40 and 5/40 schedules) manufacturing similar products participated in their study. The analysis of data from measurements of reaction time, heart rate, blood pressure, body temperature, respiratory volumes, oxygen consumption, and carbon dioxide production did not reveal any significant differences between the two groups measured before and after the first and the last day of the workweek. However, the critical flicker fusion frequency (i.e., a worker's reaction time to light) and right-hand strength showed a significantly greater impairment in the 4/40 workers. Based on these results, the researchers concluded that fatigue *does* increase in workers submitted to 4/40, but that it remains within acceptable limits. Moreover, this level of global fatigue does not lower worker productivity.

Before leaving this topic, we would like to make two points. First, it is important to remember that 4/40 should not be implemented in every kind of organization. For instance, it makes no sense to use a 4/40 schedule in such service-type organizations as restaurants, hospitals, and hotels where customer service is so important. These types of organizations cannot possibly function successfully on only a four-day schedule and still maintain good customer relations. Second, 4/40 should never be regarded as a panacea for employee motivational problems. It needs to be carefully tested on a small sample of workers in each organization before it is implemented on a large-scale basis. Unless an organization is careful, it may create more problems than existed previously (i.e., complaints about fatigue, poor customer service, increased accidents).

Flexitime

Like the compressed workweek, flexitime involves no change in the total number of hours worked per week by an employee. However, it is unique in that it transfers some control over the timing of work from supervisors to individual workers. It is based on the management philosophy that workers should have the right, insofar as their work permits, to adjust their beginning and ending hours to meet their personal needs (Hedges, 1977). The flexitime system was first introduced in 1967 at the Messerschmidt Research and Development Center outside Munich, West Germany, then it spread rapidly throughout Europe. Its introduction into the United States is a much more recent phenomenon. With the exception of a few early pioneers, most installations have appeared in the United States since 1973. In May 1980 data published by the Bureau of Labor Statistics (BLA) indicate that flexitime workers total 7.6 million workers, or 12 percent of all those on full-time, nonfarm wage and salary jobs. Workers on flexitime schedules are most prevalent among sales personnel, managers and officials, professional workers, and transportation equipment operatives. Among the major industry groups, finance, insurance and real estate, public administration, and trade have the highest proportion of full-time workers who can vary their beginning and ending hours. In federal public administration, where experimentation with alternative work schedules has been encouraged by the Federal Employees Flexible and Compressed Schedules Act of 1978, one in five workers report being on a flexible schedule.

In a typical flexitime system, the employer sets a core time during which all employees must be present. This period commonly is four to six hours in length and spans the middle of the former schedule. A flexible band of up to several hours replaces the conventional specific starting time. Instead, the workers can elect to begin work at any time during this band. Similarly, a specific quitting time is replaced by a band of several hours following core time. Although flexitime is simple in concept, its applications must be tailored to specific organizations and work sites. To help you to better understand how flexitime typically operates, Figure 18–1 describes the system implemented by the Social Security Administration.

There are both advantages and disadvantages to using such a system. Most employees like flexible working hours, since there is less pressure to be at work at a specific time. As more organizations adopt the system, commuting becomes easier because traffic jams are reduced. Productivity may also improve as varying employee efficiency patterns are accommodated. Some people hit productive peaks early in the workday, and others do not really get started until later. Flexitime allows each person to work during his or her most effective times. The system also eases the scheduling of nonwork appointments for employees, especially during the afternoons. For instance, taking the car to the service station and shopping do not have to wait until weekends or

FIGURE 18–1
Social Security Administration flextime model

Flexible Band A.M.	Core Time	Flexible Band P.M.
6:30 A.M.	9:30 A.M.	3 P.M. 6 P.M.

Flexible Band A.M. designates the period during which employees can begin work, while Flexible Band P.M. covers the corresponding departure times appropriate to an 8-1/2 hour workday (including 1/2 hour for lunch). Core Time is that part of the workday during which all employees have to be on the job. Employees are able to vary arrival and departure times on a daily basis. With prior supervisory approval, employees can "flex out" during either Flexible Band without using up earned leave, if the lost time could be "made up" before 6 P.M. Machine-clocks or sign-in/sign-out sheets are used to monitor individual compliance with the model.

Source: C. B. Barad, "Flextime under Scrutiny: Research on Work Adjustment and Organizational Performance. Reprinted from the May 1980 issue of *Personnel Administrator*, © 1980, The American Society for Personnel Administration, Berea, OH.

evenings. Workers under flexitime enjoy having more control over their own lives and feel more like the independent people they want to be (Foegen, 1980). From the employer's perspective, flexitime reduces absenteeism, sick-leave abuses, and tardiness. It also makes recruiting new workers easier, since flexitime is desirable to most applicants and therefore gives the organization the image of being a progressive employer.

Though mutual advantages can result from flexitime, organizations also face potentially serious problems. In a recent survey, experienced users of flexible working hours reported that such a system was infeasible under certain conditions, such as assembly-line operations, machine-paced work, and operations with multiple shifts. It is also a problem in small organizations having only a few employees and in operations requiring extensive coordination and interfacing among workers. Flexitime has some additional disadvantages, such as disruption of communications among interdependent workers and difficulties for supervisors in scheduling employees (Petersen, 1980). Think for a moment how difficult flexitime would be to use with such jobs as schoolteacher and assembly-line worker.

Despite these problems, flexitime can be expected to continue to grow in popularity for several reasons in the years to come. First, many women favor flexitime systems, since they provide more freedom to handle other responsibilities. Women, now constituting about 40 percent of the labor force, are more and more bringing about changes in traditional business and industrial work habits (Foegen, 1980). Second, since many employees protected by Equal Employment Opportunity laws (e.g., older persons and the handicapped) are often the same groups that have difficulty working full time, flexible schedules are becoming important employment factors in recruiting these individuals (Curry & Haerer, 1981). Finally, research evidence on the impact of flexitime on employee performance and attitudes has been found to be quite favorable in both public agencies (Golembiewski & Proehl, 1980; Ronen & Primps, 1980) and the private sector (Nollen & Martin, 1980; Golembiewski & Proehl, 1978). Prior to the passage of the flexitime legislation, close to 100 public bureaus and agencies had experimented with various forms of flexible working hours. Ronen and Primps (1980) summarized the results of studies completed in 25 public agencies and have drawn the following conclusions:

1. The organization as a unit can improve its level of effectiveness through flexitime implementation. Objective data on productivity and subjective data on performance and interpersonal relations support this conclusion.
2. Individual employees have reported improved control over work scheduling and work process, as well as an increase in uninterrupted work periods. These benefits contribute to improved organizational and individual effectiveness.
3. With respect to membership behavior, absenteeism and tardiness can be significantly reduced following the implementation of a flexitime schedule.
4. Employee attitudes towards their jobs and the work environment are improved, although supervisors/managers tend to be somewhat less positive.
5. Employees experience an improvement in the interrelationship between their work and nonwork domains—specifically, the impact of work on personal life. This includes increased flexibility in allocating time for recreation and leisure, educational and community activities, as well as the opportunity to take a more active role in family life and child rearing.

The only available review of flexitime applications in the private sector happens to also be quite encouraging. Golembiewski and Proehl (1978) reviewed 20 studies involving 79 separate applications, with all but 5 coming from private sector experience. Overall, they found that flexitime generates positive effects under a broad range of conditions.

Rotating shifts

Scott Nielson, a potash harvester at the Great Salt Lake Minerals and Chemicals Corporation, is a happier person these days. Thanks to a new shift schedule, he now sleeps only 6-1/2 hours a night, gets along better with his other workers, and no longer thinks that his wife is ornerier than ever when he has to work the graveyard shift (11 P.M.–7 A.M.). Before the newly designed shift schedule, Nielson's plant had three shifts (7 A.M.–3 P.M.; 3 P.M.–11 P.M.; 11 P.M.–7 A.M.), and he had to work one shift one week and another shift the following week. He slept too much, had poor production, and often had to rest at work in order to keep himself going. Nielson was the victim of *circadian desynchronosis,* or disruption of the normal 24-hour rhythm that regulates all body functions, such as the sleep-wakefulness cycle, temperature fluctuations, and kidney output. The problem occurs whenever our body's internal clock is not synchronized with our behavior, such as when we fly across time zones or rotate shifts. Its effects can include insomnia, gastrointestinal disturbances, mental confusion, and memory lapses (Perry, 1982).

Although the negative effects of the circadian rhythm are widespread, affecting more than 20 million shift-workers in the United States, it has received little attention from the business community until recently. Growing concern with the quality of work life has called into question the practice of rotating shifts because of its effects on family life as well as employee health and safety. The accident at the Three Mile Island nuclear generating plant, for example, occurred at 4 A.M. with a work crew that had just rotated onto the night shift. In response to this accident, the Nuclear Regulatory Commission conducted a study into the effects of various shift arrangements on safety. The business community has also begun to realize the large impact of rotating shift work on unexcused absences by employees (Nicholson, Jackson, & Howes, 1978).

How can organizations that must operate on a two-shift or three-shift schedule alleviate this problem? First, the most obvious solution is to use a *fixed* schedule rather than a rotating one. Unfortunately, this simple solution is not always possible because of the production and personal problems that it may create. Second, organizations can add to the number of weeks between changes in shifts, so that employees can have more time to adapt to a new set of hours, as well as make each successive shift start later rather than earlier. For instance, the petroleum and chemical industries have begun using 12-hour shifts extended over longer periods of time with much success (Northrup, Wilson, & Rose, 1979). Other industries, such as hotels, restaurants, hospitals, glass producers, paper producers, and steel companies, should also seriously consider this practice. Third, organizations can take advantage of the differences between individuals in their ability to rapidly adapt their circadian rhythms to shift-work schedules. For example, the National Aeronautics and Space Administration (NASA) is currently using a portable microcomputer developed in conjunction with Stanford University's Sleep Clinic to record the physiological rhythms of pilots during normal activities in the home and at work. Although this device is still being tested, it has the potential to identify job applicants who will experience work problems and stress after being hired (Perry, 1982). Other research has shown that some individuals are "morning types," and others are "evening types" of people. Apparently, morning-type people react to late-shift work with sleep deficiency and other physiological problems to a greater extent than do evening types (Breithaupt, Hilderbrandt, Dohre, Josch, Sieber, & Werner, 1978). Other researchers have shown that such things as oral temperature, peak expiratory flow, and urinary indices can be used to assess an individual's circadium rhythms (Reinberg, Vieux, Ghata, Chauont, & Laporte, 1978). This type of physiological information can be used to select those employees who can best adapt to shift changes. Finally, above the age of 45 and with increasing experience of shift work, sleep quality and sleep length are reduced in connection with working the night shift. These difficulties seem to be related to changes in circadian physiology and speed of recuperation with age (Akerstedt & Torsvall, 1981).

CHARACTERISTICS OF THE PHYSICAL WORK ENVIRONMENT

There are, of course, numerous characteristics of the physical work environment that we could discuss in this chapter. Due to space limitations it is impossible to discuss all of them. Instead, we have chosen three characteristics of the work environment that are particularly important because they affect *all* work situations: atmospheric conditions (heat and cold), illumination, and noise. One other characteristic of the work environment—the effects of music—has been chosen because its so prevalent in so many of our offices and factories and because its influence on worker productivity and satisfaction should be quite interesting to the reader.

Atmospheric conditions

Various types of variables comprise the atmospheric conditions in an individual's work environment. Besides temperature and humidity, there are such things as air pressure, oxygen supply, air pollution, and ventilation. In the typical work environment of most employees, the atmospheric conditions that are most complained about are temperature and humidity. Thus, we will focus on these two variables in this section.

The human body is continuously making adjustments to maintain its temperature around 98.6°F. The primary factors that influence this thermal equilibrium, or homeostasis, are the following:

1. Metabolism—the oxidation of food elements in the body, which generates heat.
2. Convection—the heat gain or loss by the interface of the body with the air close to the body.
3. Evaporation—the heat loss by perspiration and exhaled breath.
4. Radiation—heat loss or gain from surrounding environmental sources, such as machines, walls, and the sun via direct radiation.
5. Conduction—the direct contact of the body with some object, such as chairs and floor.

Certain environmental factors, such as air humidity, ventilation, and radiant temperature (temperature of the walls, floor, and other surfaces in the area), affect the body's heat-exchange process (McCormick & Sanders, 1982). For example, the body will show extreme heat stress under conditions of high air temperature, high wall and floor temperature, high humidity, and low ventilation. Under these conditions, the body cannot rid itself of excess heat by means of convection, evaporation, radiation, and conduction. On the other hand, our bodies may experience cold stress in certain work environments, such as cold-storage warehouses, food lockers, military maneuvers, police and fire work, and exploration activities. The degree of cold stress will depend upon such factors as air temperature, wind speed, humidity level, duration, and insulation.

The most important question to be answered in this section is, What physiological and performance effects do heat stress and cold stress bring about? The relationship between heat stress and performance is fairly complicated, the effects being dependent upon both the type of work activity and the individual involved. The effects of heat stress on performance by employees doing heavy physical work is well documented (e.g., Leithead & Lind, 1964; Lind, 1963). Likewise, heat stress has also been found to affect performance on various mental or cognitive activities, depending upon the duration of the work (Colquhoun, 1969; Moreland & Barnes, 1970; Wilkinson, 1969). Studies have shown that mental errors increase over long hours of exposure to cognitive tasks when temperatures exceed certain limits (Fine & Kobrick, 1978; Wing, 1965). Continued exposure to heat and humidity can cause dehydration, hypothermia (a condition that renders normal heat loss more difficult), as well as high body temperatures (McCormick & Sanders, 1982).

The primary interest in the effects of cold on performance has concerned manual tasks of various kinds. The results of research clearly show that extreme cold causes performance decrements due to the lowering of the hand skin temperature (Fox, 1967). However, the lower boundary of acceptable hand skin temperature depends upon the particular type of task involved (e.g., putting small blocks into a box; stringing small locks with holes using needle and thread) (Lockhart, Kiess, & Clegg, 1975). Although there have been very few studies on the effects of cold stress on higher mental processes, available evidence suggests that such processes are not greatly affected by cold (McCormick & Ilgen, 1980).

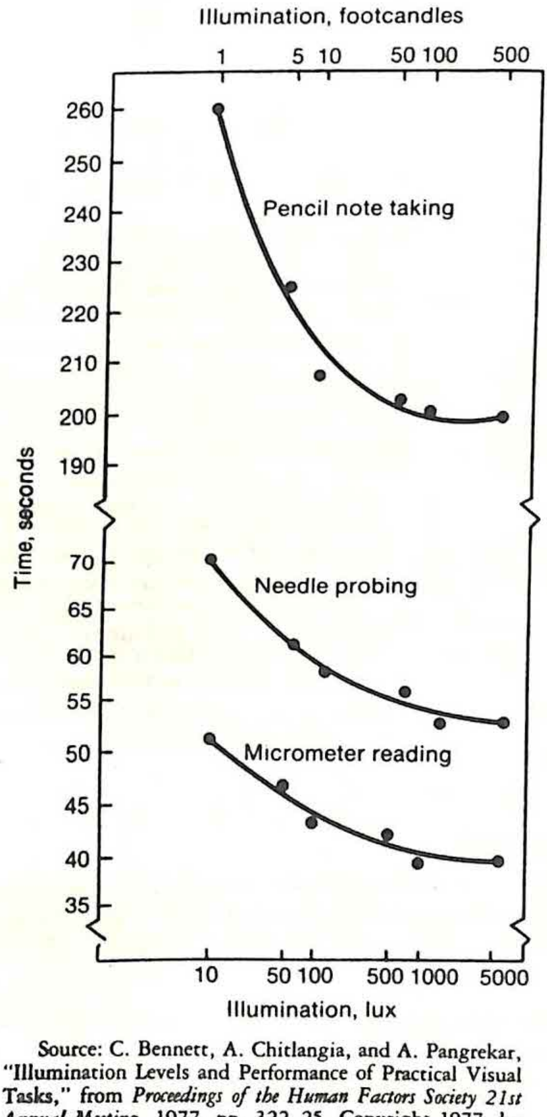
Illumination

It seems like mere common sense to say that the quality of work depends upon the type of illumination in the work environment. Despite the obviousness of this statement, this is a complex area of research. Numerous studies relating various lighting characteristics with job performance have been undertaken. General statements about necessary lighting requirements at work are difficult to make because they depend on the type of job involved, the visual abilities and age of a particular worker, and the context in which the tasks are performed (Korman, 1977). Nevertheless, in this section we will review some of the major findings concerning three critical characteristics of organizational illumination: intensity, distribution, and glare.

More research has been conducted on intensity of illumination than any other aspect of illumination. Most of these studies have found that increasing levels of illumination result in smaller and smaller improvements in performance (McCormick & Sanders, 1982). Figure 18–2 for example, shows the relationship between amount of illumination and task completion time for three different industrial tasks. As you can see, the exact shape of the relationship depends largely on the *specific* task being performed. The major problem, then, for illuminating engineers and industrial/organization psychologists has been to determine the optimum level of illumination that should be provided for *each* job. The answer to the question, How much light is optimum? depends upon the age and preferences of the employee (Bennett, Chitlangia, & Pangrekar, 1977; Hughes & McNelis, 1978), as well as the fact that too much illumination wastes energy and creates glare.

Since 1982 the Illuminating Engineering Society (IES) has adopted an approach for determining illumination levels for interior lighting that uses ranges of illuminance accompanied by weighting factors to select the recommended illuminance level (McCormick & Sanders, 1982). The first step in the procedure involves finding the activity in the *IES Lighting Handbook* (1972), which contains extensive tables listing various types of tasks, each referencing one of the nine illumination categories shown in Table 18–1. As you can see, this table provides for each category a range (i.e., low-middle-high) of illuminances. To decide which of these three values to use, one must compute

FIGURE 18–2
Relationship between amount of illumination and task completion time for three industrial tasks



Source: C. Bennett, A. Chitlangia, and A. Pangrekar, "Illumination Levels and Performance of Practical Visual Tasks," from *Proceedings of the Human Factors Society 21st Annual Meeting*, 1977, pp. 322–25. Copyright 1977, by The Human Factors Society, Inc., and reproduced by permission.

TABLE 18–1
Recommended illumination levels for use in interior-lighting design

Category	*Range of illuminances, lx (fc)*	*Type of activity*
A	20–30–50* (2–3–5)*	Public areas with dark surroundings.
B	50–75–100* (5–7.5–10)*	Simple orientation for short temporary visits.
C	100–150–200* (10–15–20)*	Working spaces where visual tasks are only occasionally performed.
D	200–300–500† (20–30–50)†	Performance of visual tasks of high contrast or large size: e.g., reading printed material, typed originals, handwriting in ink and good xerography; rough bench and machine work; ordinary inspection; rough assembly.
E	500–750–1000† (50–75–100)†	Performance of visual tasks of medium contrast or small size: e.g., reading medium-pencil handwriting, poorly printed or reproduced material; medium bench and machine work; difficult inspection; medium assembly.
F	1000–1500–2000† (100–150–200)†	Performance of visual tasks of low contrast or very small size: e.g., reading handwriting in hard pencil on poor quality paper and very poorly reproduced material; highly difficult inspection.
G	2000–3000–5000‡ (200–300–500)‡	Performance of visual tasks of low contrast and very small size over a prolonged period: e.g., fine assembly; very difficult inspection; fine bench and machine work.
H	5000–7500–10,000‡ (500–750–1000)‡	Performance of very prolonged and exacting visual tasks: e.g., the most difficult inspection; extra fine bench and machine work; extra fine assembly.
I	10,000–15,000–20,000‡ (1000–1500–2000)‡	Performance of very special visual tasks of extremely low contrast and small size: e.g., surgical procedures.

* General lighting throughout room.
† Illuminance on task.
‡ Illuminance on task, obtained by a combination of general and local (supplementary) lighting.
Source: Illuminating Engineering Society, RQQ Report no. 6, "Selection of Illuminance Values for Interior ighting Design," *Journal of Illuminating Engineering Society* 9 (April 1980), p. 188.

a correction factor using Table 18–2. This correction factor takes into consideration the workers' ages, the speed or accuracy required by the work, and the reflectance of the task background.

Another factor in illumination is the distribution of light in the work area. The *luminance ratio* is the ratio of the luminance of a given work area to the surrounding area (McCormick & Sanders, 1982). The typical recommended luminance ratio for offices and industrial situations by the IES is 3:1 (i.e., task:surroundings). Of course, this ratio will vary depending upon the lightness and darkness of the surroundings, as well as whether the surroundings are remote or adjacent. If the

TABLE 18–2
Weighting factors to be considered in selecting the specific illumination levels within each category of table 18–1

Task and worker characteristics	*Weight*		
	−1	*0*	*+1*
Age	Under 40	40–55	Over 55
Speed or accuracy	Not important	Important	Critical
Reflectance of task background	Greater than 70 percent	30 to 70 percent	Less than 30 percent

Source: Illuminating Engineering **Society, RQQ Report** no. 6, "Selection of Illuminance Values for Interior Lighting Design," *Journal of Illuminating Engineering Society* 9 (April 1980), p. 188.

luminance ratio is not properly set, considerable eyestrain will develop over time due to dilations and contractions of the pupils whenever an employee shifts his or her eyes from the work area to the surrounding area (Schultz, 1978).

Glare is produced by brightness within the visual field that is greater than the luminance to which the eyes have adapted. According to the IES Nomenclature Committee (1979), there are three types of glare that can occur in the work environment: (1) *discomfort glare,* which causes discomfort but does not necessarily impede visual performance or visibility; (2) *disability glare,* which reduces visual performance and visibility and is often accompanied by discomfort; and (3) *blinding glare,* which is so intense that the worker becomes temporarily blinded. Listed below are a few examples of some ways that these types of glares can be reduced (McCormick & Sanders, 1982):

Use surfaces that diffuse light, such as flat paint, nonglossy paper, and crinkled finish on office machines.

Use diffuse light, indirect light, baffles, and window shades.

Construct an outdoor overhang above windows.

Use light shades, hoods, and visors where glare sources cannot be reduced.

Music

Since Muzak® is the largest single distributor of music in work settings, it is interesting to spend some time reviewing the company's claims. According to its promotional materials, Muzak is more than music, it is an environment that makes work more pleasant, less stressful, and less monotonous. Besides improving work attitudes, Muzak claims to improve productivity and efficiency, reduce complaints of fatigue, reduce turnover, and yield a higher return on each payroll dollar. The core of its success, the company believes, can be attributed to its Stimulus Progression Programming concept, wherein sound is arranged in quarter-hour segments, with each segment delivering an uplift, a pattern that makes people feel better and makes time go faster. It begins with the least stimulating selection and advances to those selections that are most stimulating. Muzak is not intended to be listened to with total concentration. Instead, its aim is to help employees without taking their attention away from their primary work. Among the numerous organizations using Muzak in their offices and/or plants are Lever Brothers, Eastern Airlines, Bulova Watch, Black & Decker, New York Blue Shield, Mississippi Power & Light Company, and American Machine & Foundry. These organizations, and many others like them, strongly believe that using planned musical programs is a way of managing the work environment that generates profitable results. In fact, over the past two decades, Muzak claims that many and varied studies have been conducted showing the beneficial effects of Muzak programming in work situations. For example, Muzak points to a large Japanese automobile manufacturer that conducted a study to determine whether Muzak influences on-the-job fatigue. To quantify fatigue, the company used a fatigue scale developed by the Japanese Industrial Hygiene Association. This measure of fatigue asks an employee to mark whether he or she is, or is not, experiencing 30 different symptoms (e.g., nausea, yawning, apathy) of fatigue. The results showed that Muzak reduced the percentage of workers experiencing 29 of the 30 fatigue conditions on the scale. Overall, it reduced fatigue symptoms by 32.4 percent over a two-week period—one week with the Muzak system turned off and the next week with it turned on (Wokoun, 1980). Like many studies designed to assess a particular product, this research design leaves much to be desired in terms of scientific rigor. For instance, the favorable results might have been due merely to the implementation of something new and may not have held up over time. The self-reported fatigue reduction may have also been due to the fact that the automobile employees liked the attention paid them and/or they wanted to please the researchers by helping them to obtain favorable results. Without a rigorous research design, we will never know the true reasons for the findings of any experiment. With this in mind, let us now turn to the findings of more rigorous research on the effects of music in the work environment.

The effects of music on worker attitudes have been consistently positive. Almost all employees prefer music on the job, and only a small minority actively dislike it (Kerr, 1943, 1945; McGehee & Gardner, 1949; Smith, 1947). For instance, in one study conducted in a skateboard factory with assembly-line personnel, employees liked the music and wanted it to continue, believed it made time pass faster, and believed it relieved the monotony of their jobs and gave them something to look forward to. Contrary to what was shown by production records, 73 percent of the employees believed that they got more work done when music was played (Newman, Hunt, & Rhodes, 1966). This extremely favorable attitude of workers toward music on the job is in agreement with the findings reported by independent studies of Muzak effectiveness.

The research results examining the effects of music on productivity have been quite variable. A few investigators have reported slight increases in productivity with the introduction of music (Kerr, 1945; Smith, 1947), and others have found no measurable effects (McGehee & Gardner, 1949; Newman et al., 1966). The reason usually given for these inconsistent results has been the different jobs studied in each instance. It has been generally acknowledged that an interaction exists between type of job and the influence of music on productivity. That is, more routine and monotonous jobs have a greater probability of showing improved performance when music is introduced into the work environment than have higher-skilled, more complex jobs (Gilmer & Deci, 1977). On complex jobs, the work demands the employees' full concentration, and they are unable to attend to the music as they can on simple jobs. Although this reasoning sounds logical, we do not have enough research studies on the effects of music on productivity to draw such a sweeping conclusion. In fact, there is some preliminary evidence to suggest that this notion is incorrect. McGehee and Gardner (1949) attributed the lack of any relationship between music and productivity in their study to the high level of job complexity and the extensive experience of the female "setters" in their rug manufacturing factory. In the Newman et al. study, which also found no change in measured productivity, both of these conditions were reversed. The job involved routine operations requiring a relatively low level of skill, and most employees had little (i.e., less than six months) job experience. This implies that job complexity and experience do not automatically moderate the effects of music on productivity as previous authors have led readers to believe.

The answers to such questions as: Does music increase productivity? What types of jobs is music best for?, and What kinds of music is best to use? must remain unanswered until additional rigorous field research is undertaken. Since the mid-1940s, there has been a dramatic increase in the number of offices and factories that pipe in music to their employees. Yet, when we reviewed the research literature, we found very few studies conducted on this topic since the 1940s and 1950s. We have no idea why the topic of music has lost its appeal to researchers. With our nation's concern with such topics as stress reduction and productivity and quality of work life, we would hope that this area will once again become worthy of investigative attention. Without scientific research, the claims of music distributors will remain unchallenged.

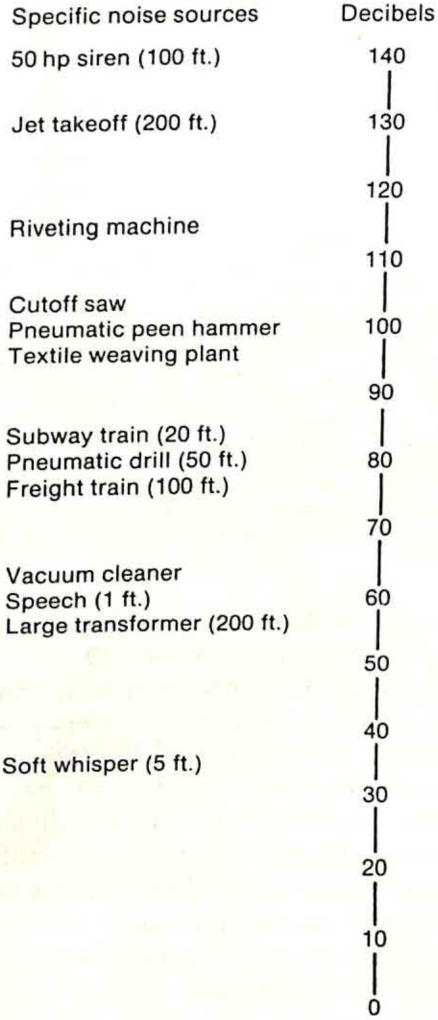
Noise

The 20th century has been called the century of noise and noise pollution. The large number of employees now suffering hearing loss from exposure to occupational noise clearly suggests that this problem cannot be ignored. Present evidence indicates that for ordinary industrial noises, exposure to 80 decibels for eight hours per day can be considered as being completely safe, 85 decibels will induce a measurable loss at high frequencies in susceptible individuals, and over 90 decibels will induce a significant loss (Sulkowski, 1980). Figure 18–3 provides some typical overall sound levels in decibels (Peterson & Gross, 1978). Clearly, prolonged exposure to excessive noise levels produces irreversible damage to the auditory system. The nature of this damage is destruction of hair cells of the organ of corti in the cochlea. These structures cannot be replaced. Once they are damaged, they are gone forever (Woodford, 1981).

The major legislation regulating noise control and hearing conservation is the Occupational Safety and Health Act (OSHA), which went into effect in April 1971. The general purpose of this act is "to assure so far as possible every working man and woman in the nation safe and healthful working conditions and to preserve our human resources." Section 50–204.10 of this act establishes acceptable noise levels and exposures for safe working conditions and provides various actions that must be taken by employers if these levels are exceeded. Table 18–3 presents the permissible noise exposures specified in the act. It can be seen from this table that the acceptable sound intensity for an eight-hour working day is 90 decibels, measured on the A scale of a standard sound-level meter. This 90-decibel level is taken as the limit of exposure that will not cause any type of hearing loss in more than 20 percent of those exposed. The table also gives higher sound levels with corresponding permissible exposure times that will not bring about any more damaging effects than will eight hours of 90-decibel noise. As you can see, employees in any industry must not be exposed to sound levels greater than 115 decibels for any amount of time (Cheremisinoff & Cheremisinoff, 1977).

When employees are subjected to sounds exceeding those listed in Table 18–3, the act states that feasible administrative or engineering controls should be utilized. Table 18–4 provides several examples of

FIGURE 18–3
Decibel levels for various sounds



Source: A. P. Peterson and F. E. Gross, *Handbook of Noise Measurement*, 8th ed. (Concord, Mass.: GenRad, 1978), p. 4.

engineering control measures that minimize noise levels at the source or in the hearing area of the employees. When engineering controls are not sufficient to maintain permissible noise levels, administrative controls should be used—such as performing necessary high-level noise-producing operations at night or at other times when fewer employees are present and seeing to it that employees who have reached the maximum limit of duration for a high noise level spend the

TABLE 18-3
Permissible noise exposures*

Duration per day (hours)	*Sound level dBA slow*
8	90
6	92
4	95
3	97
2	100
1½	102
1	105
½	110
¼ or less	115

* When the daily noise exposure is composed of two or more periods of noise exposure at different levels, their combined effect should be considered, rather than the individual effect of each. If the sum of the following fractions: $C_1/T_1 + C_2/T_2 \ldots C_n/T_n$ exceeds unity, then the mixed exposure should be considered to exceed the limit value. C_n indicates the total time of exposure at a specified noise level, and T_n indicates the total time of exposure permitted at that level.

Source: P. N. Cheremisinoff and P. P. Cheremisinoff, *Industrial Noise Control Handbook* (Ann Arbor, Mich.: Ann Arbor Science Publishers, Inc., 1977). Reprinted by permission.

remainder of the day working where the noise level is far below 90 decibels (Cheremisinoff & Cheremisinoff, 1977).

An excellent example of an effective hearing conservation program following OSHA guidelines is currently underway at United Airlines. A baseline audiogram is performed on 16,000 employees in the program who are routinely exposed to potentially hazardous noise levels. Annual audiograms are then taken on these individuals and compared with their baseline audiograms in order to identify those employees who may be experiencing a noise-induced hearing loss so that adequate preventive measures can be taken to ensure that further losses do not occur. In addition, the program involves issuing company-approved personal ear-protection devices and training employees as to their proper use and maintenance; identifying and posting of potentially hazardous noise areas and operations; and sufficient monitoring by supervisors of employees' proper wear and maintenance of ear-protection devices (Weaver & Harper, 1981). Other organizations, such as Eastman Kodak, have been concerned about noise control for office personnel (Herbert, 1980). In 1967 Kodak was one of the first organizations to make a commitment to the open office landscape concept. Psychological tests given to a sample of office employees indicated a generally favorable response to the openness of the office, but some dissatisfaction with the noise level and lack of speech privacy. The solution was the installation of an electronic masking-sound system

TABLE 18–4
Engineering control measures

A. Substitution of machines.
  1. Larger, slower machines for smaller, faster ones.
  2. Step dies for single operation dies.
  3. Presses for hammers.
  4. Rotating shears for square shears.
  5. Hydraulic for mechanical presses.
  6. Belt drives for gears.

B. Maintenance of equipment.
  1. Replacement or adjustment of worn and loose or unbalanced parts of machines.
  2. Lubrication of machine parts and use of cutting oils.
  3. Properly shaped and sharpened cutting tools.

C. Substitution of processes and techniques.
  1. Compression for impact riveting.
  2. Welding for riveting.
  3. Hot for cold working.
  4. Pressing for rolling or forging.

D. Dampening vibration in equipment.
  1. Increase mass.
  2. Increase stiffness.
  3. Use rubber or plastic bumpers or cushions (pads).
  4. Change size to change resonance frequency.

E. Reducing sound transmission through solid materials.
  1. Flexible mounts.
  2. Flexible sections in pipe runs.
  3. Flexible shaft couplings.
  4. Fabric sections in ducts.
  5. Resilient flooring.

F. Including noise level specifications when ordering new equipment.

G. Reducing sound produced by fluid flow.
  1. Intake and exhaust mufflers.
  2. Fan blades designed to reduce turbulence.
  3. Large, low-speed fans for smaller, high-speed fans.

H. Isolating noise sources.
  1. Completely enclose individual machines.
  2. Use baffles.
  3. Confine high-noise machines to insulated rooms.

Source: P. N. Cheremisinoff and P. P. Cheremisinoff, *Industrial Noise Control Handbook* (Ann Arbor, Mich.: Ann Arbor Science Publishers, Inc., 1977). Reprinted by permission.

that is achieved with loudspeakers suspended over the ceiling in a carefully engineered pattern that assures uniformity throughout the entire office area. This system masks the level of activity noise due to such things as typewriters and distracting conversations audible from adjacent offices. Electronic masking sound has since become a standard component of accoustically engineered open offices.

We know that noise can bring about hearing loss, but what influence does it have on worker productivity? There is no simple answer to this question, since noise affects: (1) some performance measures more than others, (2) some types of jobs more than others, and (3) some employees more than others. For example, Weinstein (1977) had college students perform a proofreading task in quiet and in a moderate level of noise (i.e., a tape recording of radio news items at 68 decibels). He found that the noise significantly impaired the detection of *grammatical errors,* but had no effect on the students' *speed* or their detection of *spelling errors*. In another study involving college students, Weinstein (1978) investigated differences among individuals in their initial reactions to noise and in their ability to adapt to noise over a longer period of time. College freshmen were asked to complete a self-report measure of their noise sensitivity before they arrived on campus. Two subgroups were identified (noise-sensitive and noise-insensitive) based on their scores. Self-reports of dormitory noise disturbance were obtained from both subgroups early in the school year and again seven months later. Weinstein found that noise-sensitive students were much more bothered by dormitory noise. Further, they became increasingly disturbed during the year, but noise-insensitive students displayed no such change. This study shows that sensitivity to noise is a personal attribute that differs among individuals. Interestingly, correlations of the noise-sensitivity scale with academic test data and personality test scores suggest that noise-sensitive students are lower in scholastic ability, feel less secure in social interactions, and have a greater desire for privacy than other less noise-sensitive students. Based upon a review of the research literature, Plutchik (1959) concluded that performance impairments are most likely to occur during high-intensity, intermittent sound. In addition, the relative difficulty of the task is another important factor in determining the effect of noise on performance; the more difficult the task, the more likely it is that noise will disrupt performance (Finkleman & Glass, 1970). Numerous studies have found that noise that is fairly loud, unpredictable, and intermittent significantly degrades information processing by disrupting memory, overloading an individual's channel capacity, and/or disturbing logical and associative connections (Horman & Osterkamp, 1966; Finkleman & Glass, 1970; Glass, Singer, & Friedman, 1969).

What can personnel specialists do to make certain that noise does not reduce employee productivity? First, employees must be trained to use such personal protective equipment as ear muffs and ear plugs. Second, validated selection tests can be used to hire noise-sensitive employees. Finally, the work environment should consist of quieter equipment as well as accoustical enclosures and barriers.

IMPROVEMENTS IN THE WORK ENVIRONMENTS

In this final section of the chapter, we will present some of the things organizations are currently doing to improve the quality of the employee's work environment. The first two topics—safety and fatigue—deal with traditional issues covered in several other textbooks, and the last two topics—robotics and office design—concern two of the newest developments taking place today in the work environment.

Safety and health

The National Safety Council is responsible for keeping track of industrial accidents in this country. Each year, the council publishes alarming accident statistics, such as the following:

1. Approximately 1 million productive-person years are lost each year through work-related accidents.
2. Accidents cost our nation at least $51 billion in lost wages, medical expenses, property damage, and insurance costs per year.
3. Injuries to American workers each year would have the same economic impact as if the nation's entire industrial community shut down for an entire week.
4. In the United States loss of life from accidents during the 20th century far exceeds that from all natural catastrophies combined—such as earthquakes, floods, and tornadoes. Even adding the number of deaths from wars to these natural disasters does not reach the total number of deaths through accidents (DeReamer, 1980).

What is cur country doing to remedy this tragic situation? From a legal viewpoint, there are two basic kinds of legislation that impact on occupational safety and health. Each of the 50 states has workers' compensation (WC) laws that provide benefits to employees should they suffer a work-related illness or injury. To be covered by WC laws, an employee must work in a covered occupation for a covered employer. In addition, the covered employee must suffer a work-related injury or illness in order to be eligible for benefits. What is considered to be work-related varies considerably from state to state. Three types of benefits are usually provided: death payments, medical payments, and/or wage-replacement benefits, which usually amount to about 50 to 67 percent of the individual's weekly pay.

The second type of legislation consists of federal and state OSHA laws. As was mentioned in the previous section on noise, the Occupational Safety and Health Act (OSHA) was put into effect in April 1977. Its primary purpose is to reduce occupational injuries and illnesses and to improve health through safety standards. These standards involve a large number of specific and intricate rules and regulations for each industry. They cover such things as compressed gas, power tools, machinery and machine guards, and toxic substances. The act covers all private employers engaged in business affecting interstate commerce, regardless of their size. Federal, state, and local governments are exempt from OSHA, but their employees are typically covered by other legislation. The act is administered by the Occupational Safety and Health Administration within the Department of Labor. The act also created the National Institute for Occupational Safety and Health, which assists in the development of safety and health standards, conducts basic research on the causes and prevention of accidents, and develops educational programs for employers. The Occupational Safety and Health Administration conducts on-site inspections either after a charge is filed by an employee alleging an unsafe and/or unhealthy work environment, or on OSHA's own initiative. Noncompliance often results in stringent fines for each violation and/or imprisonment if the situation is not remedied. Finally, the act provides that individual states may develop and administer their own programs, if they desire to. There are many criteria for approval, the most important of which is that the state's program must be judged "at least as effective" as the federal program. To date, about half of the states have approved plans of operation. For instance, the Michigan Occupational Safety and Health Act was passed in 1974 to provide job safety and health protection for Michigan employees.

What can an organization do to reduce accidents and health hazards? In our opinion, the single most important factor influencing how effectiveness of an organization's safety programs is top-level management's commitment and involvement. Behaviorally, this means that management should: (1) appoint a safety director with high-level rank and authority, (2) appraise supervisors' job performance in terms of the safety records of their subordinates, (3) insist on having a detailed, high quality safety recordkeeping system, (4) include safety figures and reports in company board meetings, and (5) conduct safety inspections by top-level managers.

Reducing technological hazards by redesigning machinery, equipment, and work methods has been extremely successful. In fact, much of the credit for the substantial reduction in accidents over the past 50 years must be credited to the safety engineers. They have introduced such devices as rounded corners on desks, mirrors placed on sharp turns, improvements in lighting, better ventilation and heating, and sophisticated radiation-monitoring equipment.

Another effective approach for improving safety has involved the use of positive reinforcement and feedback. This behavioral approach to occupational safety is exemplified by a recent study by Komaki, Barwick, and Scott (1978) in a food-manufacturing plant. Desired safety behaviors were identified that permitted a framework for observing and recording a worker's on-the-job performance over a 25-week period of time. The intervention consisted of an explanation and visual presentation of the desired behaviors, as well as frequent, low-cost reinforcement in the form of verbal feedback (e.g., praise). Employees in the two departments involved improved their safety performance from 70 percent to 96 percent in one department and from 78 percent to 99 percent in the other. Not only did the employees react favorably to the program, but the organization was later able to maintain the program with a continuing decline in the injury frequency rate. This study and others like it suggest that by behaviorally defining and positively reinforcing safe practices, occupational accidents can be reduced. An approach similar to this involves having safety contests between employees or departments. Safety contests usually involve cash prizes of various sorts.

Finally, we have heard frequently from managers that weekly or biweekly safety meetings held between a supervisor and the employees is an effective method of reducing accidents. The meetings appear to be most effective when they stimulate group discussion on the solutions to actual work-related problems that cause accidents and when the meetings are run by the employees themselves rather than by the supervisor.

Fatigue and rest pauses

There are two main types of fatigue that can affect an employee's job performance: physiological fatigue (caused by prolonged use of body muscles) and psychological fatigue (which is similar to boredom). Both types of fatigue can cause decrements in production, as well as increases in errors, accidents, absenteeism, tardiness, and turnover.

Prolonged or heavy physical work produces physiological fatigue in the body. In addition, persons working in extremely hot or cold environments can suffer from physiological fatigue due to heat or cold stress (McCormick & Sanders, 1982). Typical symptoms of physiological fatigue include such things as increased heart rate, increased oxygen consumption, and muscle tension. There are several things that industrial/organizational psychologists and physicians can do to alleviate physiological fatigue, for example, the proper selection of workers for heavy labor by means of physical testing and medical examinations and the training of workers to use proper work methods and pacing. Perhaps the main approach that has been taken for alleviating physiological fatigue has been the introduction of adequately spaced rest pauses. We know through research that if workers are not provided with authorized rest breaks, they will take it upon themselves to take unauthorized periodic pauses (McGehee & Owen, 1940). This suggests that management would be well advised to carefully determine the optimum scheduling of rest pauses and make them a formal part of the employee's workday. In addition, there is some research evidence suggesting that rest periods typically do not reduce worker output, even though there is less time worked, and that sometimes there is actually an increase in output (Bhatia & Murrell, 1969). How should one determine the optimum length of rest pauses, since they should vary depending upon the type of work being done? Murrell (1965) has presented a useful formula for estimating the total amount of rest required for any given type of work, as a function of its average energy cost. McCormick and Sanders (1982) point out that this general formulation needs to be taken with a "fair sprinkling of salt" because of differences among workers in physical fitness due to variations in general health, age, and diet. The best way, we think, of determining the length and placement or rest pauses for any job is through systematic experimentation. For example, one firm experimented with the effects of using two different rest period schedules (six 10-minute pauses versus four 15-minute pauses) with female operatives. They used two measures of productivity—an efficiency index and amount of earnings—and measured employee attitudes toward work, workmates, and supervisors. The results showed that the six 10-minute pauses brought about a slight increase in productivity and that there was overwhelming preference for it over the four 15-minute pause schedule (Bhatia & Murrell, 1969).

Psychological fatigue is more elusive in terms of accurate measurement, but it is nonetheless just as important as physiological fatigue in terms of its affects on workers' well-being and their productivity. Rather than accumulating over the course of a workday, reported feelings of boredom tend to fluctuate during the work period due to variations in the worker's level of motivation, mental strain, mood, and perception of the task demands (Nelson & Bartley, 1968). However, data from most studies suggest that the greatest feelings of tiredness and boredom tend to occur during the fourth and eighth hours of the eight-hour work shift (McCormick & Ilgen, 1980). All things considered, it would seem logical to introduce rest pauses to office workers sometime during midmorning and midafternoon just before these feelings of boredom and tiredness start. Another possible alternative is to have employees decide for themselves when they believe they most need their breaks.

Finally, certain jobs, such as air-traffic controller and radar operator, entail accurate monitoring or vigilance. These types of activities typically require rest pauses after about 20 to 30 minutes. Longer monitoring periods show rapid deterioration (i.e., errors in detecting signals) (Teichner, 1974).

Robotics

Our common conception of the industrial robot is of a surrogate human being. The classic example of this is "C3PO," the manlike creation of *Star Wars* fame. However, today's industrial robots bear little resemblance to human beings. Most of them basically consist of mechanical arms with claws for fingers. Their "brain" involves a computer that transmits instructions to the claw by means of electrical impulses. It is estimated that there are now more than 20,000 robots in operation worldwide, about 5,000 in operation in this country, and approximately 14,000 in Japan (Friedrich, 1980; Kanabayashi, 1981; Lublin, 1981). Since the 1960s, and particularly in the past few years, interest in the demand for robotics has increased significantly.[1]

Until now employers have installed robots mainly in dirty, dull, or dangerous jobs few workers want to perform. Early generation robots were programmed mainly to forge, weld, spray paint, handle materials, load machines, and inspect auto bodies. In 1980 a major advance was made in robotics by the introduction of Puma (i.e., Programmable Universal Machine for Assembly). "Puma is in the vanguard of an army of small and relatively inexpensive robots that are taking over more and more jobs that were previously performed by humans" (Bylinsky, 1979, p. 90). Among the tasks performed by Puma at General Motors Corporation, for example, are: partial assembly of armatures for electric motors, screwing small electric bulbs into instrument panels, and helping to put windshield washers together. In short, robots are being used today in a wide variety of applications.

At this time, the future technological developments in robotics seem almost boundless. Research is now being conducted on robot vision, as well as on the robot's ability to adapt to slight changes due to damaged or out-of-sequence parts. For instance, Scheinman, the inventor of Puma, is trying to develop a robot with a sense of touch. His goal is to develop a hand sufficiently sensitive "so that Puma will be able, essentially, to pick up an egg at one moment and not crush it and then pick up a lead brick in the next motion and not drop it" (Bylinsky, 1979, p. 96). Robot language is also continuing to develop. A Puma robot can be told what to do by typing in its instructions on a computer keyboard in a language that includes about 100 English words. It is hoped that sometime in the near future robot commands can be spoken or typed completely in human language. Robot experts predict that someday there will be "thinking" robots capable of making limited decisions. This will entail programming them so that their various sensory and motor systems will be integrated.

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[1] The ideas presented in this section are based upon a paper by Werner (1981) dealing with the impact of robots on U.S. industry.

Is the United States really facing a "robot revolution," or is robotics merely a fad? Most experts in this area agree that robotics has indeed arrived in the American working environment and that robots will make a significant impact on America business and society in general. A primary reason so many U.S. organizations are now switching to robots is to cope with increasing overseas competition—particularly from the Japanese, who have substantially more robots than any other country. For example, in 1981 Yamazaki Machinery Works opened a "flexible manufacturing factory," which produces more than 70 different kinds of lathe and machining parts. This is probably one of the most impressive of the several so-called manless plants that are now sprouting up throughout Japan. Twelve people cover two work shifts, and nobody but the robots works the graveyard shift. Before installing robots, it took 215 employees to cover the three shifts (Kanabayashi, 1981). Sumitomo Electric Industries, Ltd. opened in 1980 a completely computerized and robotized plant in Hokkaido to produce extra-hard metal alloys (Lohr, 1981).

Although the United States has made many innovations and applications of robotics in industry, we have not embraced robotics the way the Japanese have. Why not? First, robots have been used primarily in this country on assembly lines with long production runs. Consequently, most robots have been purchased by large, capital-intensive organizations. However, contrary to popular belief, about 75 percent of U.S. products are *not* mass produced in long production runs, but are assembled in small batches. Currently, much of this kind of work is done by hand and is not as yet amenable to robotics (Bylinsky, 1979). Second, technical managers and plant supervisors are naturally hesitant about the introduction of robotics "because they don't understand robots" (Friedrich, 1980). Interestingly, when General Electric introduced robotics, the greatest anxiety was found among foremen (Friedrich, 1980). According to Werner (1981), this reluctance regarding robotics fits within the framework of managerial obsolescence, a growing discrepancy between the manager's expertise and the changing demands of jobs and work structures. Obviously, such a technological advance as robotics "threatens the relevance of preexisting managerial knowledge and expertise" (Burack, 1972, p. 83). Despite these feelings of anxiety on the part of many workers, robotics will rapidly increase in the 1980s because of three primary advantages: improved productivity, near-faultless performance, and lower labor costs (Werner, 1981). This final reason, the prospect of lower labor costs, has become increasingly more important to organizations as wage inflation has boosted wages so rapidly during the past ten years.

What impact does robotics have on jobs? Do robots put people out of work? The answer is not clear-cut. Obviously, the job the robot replaces will cease to exist. Further, if the robot is more productive than a worker, this can have a multiplier effect, causing other jobs to be lost. However, robotics advocates claim that no workers to date have been laid off or fired due to a robot taking their jobs. This is due in large part, however, to the fact that large companies, such as General Electric, have made certain that displaced workers are retrained for other jobs rather than laid off (Werner, 1981). Officials at GE have said that they are not certain whether they can continue this policy when their aggressive robotization program gets into full swing (*Business Week,* June 9, 1980). Robotics advocates also claim that new jobs are being created every day by the newly emerging robotics industry. These jobs are in four areas of employment: robot manufacturing, direct suppliers to robot manufacturers, robot systems engineering, and corporate robot users. For instance, according to a study researched by the Upjohn Institute for Employment Research, it is estimated that robots will displace between 13,500 and 24,000 workers in Michigan by 1990. The study also predicts that between 10,500 and 18,000 of the jobs will be lost in the automotive industry. Conversely, by 1990 robotics is expected to create from 5,000 to 18,000 jobs in Michigan in the four areas of employment mentioned above (Hunt & Hunt, 1981).

Finally, how do American unions react to robotics? Since robots have been installed on unpleasant and/or unsafe jobs in the past, the unions have *not* opposed the installation of robots. Now, however, robots are being increasingly used for assembly tasks. This has caused unions to press for stronger guarantees against job losses from automation, advance notice of robot installations, and retraining for jobs at equal or better pay (Werner, 1981). Management is likely to agree to contract provisions for the advance notice and retraining of displaced workers. In fact, the United Auto Workers union has already won advance notice and retraining rights from major automakers. However, management is not likely to offer unions a say in robot purchase decisions. "I don't think U.S. management will give unions the veto power over whether or not to automate a plant," says Frank Doyle, GE's senior vice president for corporate relations (Lublin, 1981). One thing is certain, however—robots will be an important issue at the bargaining table in the years to come.

Open-plan offices and privacy

A recent survey conducted by Louis Harris & Associates, Inc. for Steelcase, Inc. showed that 30 percent of today's office personnel work in open-landscape environments. Other studies predict that by the year 1990 from 60 to 80 percent of office personnel will be working in similar settings (Prince, 1980). The current and future popularity of open-plan offices become evident when one realizes that nearly half of the U.S. working population spend their time in offices (Brookes, 1972).

Open-plan offices mean that office walls are tumbling down in favor of partitioned work areas separated by movable screens and storage units, usually about five feet high. Attached to these freestanding panels may be any number of different types of components, such as shelves, drawers, horizontal work surfaces, and computer trays. Private offices are gradually diminishing, although there are some high-level managers who are still adamant about their need for privacy (Prince, 1980). The concept of Burolanschaft (office landscape) is said to be an innovation of West German furniture manufacturers, Ebehard and Wolfgang Schnelle. Their assumption was that an office is primarily an information processing center, and office architecture can directly facilitate that process (Lorenzen, 1967). Starting in the late 1960s, American businesses and the office furniture industry became interested in open-office design. Today, nearly 300 lines of open-office furniture have been introduced, many of them in the past five years (Kotula, 1979). Numerous companies have installed landscape offices—for example, Eastman Kodak, IBM, John Hancock Mutual Insurance Company, Montgomery Ward & Co., Owens-Illinois, Inc., and Weyerhaeuser Company. Listed below are some of the advantages that these organizations, and others believe the open-landscape environment gives them (Prince, 1980):

1. A whole department can be relocated overnight with an open plant at a cost of only $1 per square foot, compared with $20 or more to move a traditionally designed department.
2. Communications between employees are enhanced, since standing-height partitions encourage eye contact between workers and tend to loosen-up office hierarchies.
3. Twenty percent fewer light fixtures are needed to illuminate a given area, since the reduction of walls between offices allows a more efficient placement of fixtures.

4. The initial installation of an office, which formerly took weeks of electrical and carpentry work, is accomplished at a fraction of that time and at reduced cost.
5. The plan is more than just an assortment of screens, plants, and movable fixtures. The designer considers a multitude of factors, such as the communication patterns among work groups, traffic lanes, and lines of sight, as well as visual and auditory privacy needs of employees.

Numerous studies in social psychology have demonstrated that physical layout can influence such variables as patterns of communication and social interactions (e.g., Proshansky, Ittleson, & Rivlin, 1970; Canter, 1972). However, very little empirical research has been conducted to date on the effects of the physical work organization on such variables as employee satisfaction, motivation, and organizational health (Oldham & Brass, 1979). Advocates of the "social relations approach" would predict that the absence of interior walls and barriers in open-plan offices should facilitate the development of social relationships among employees, which in turn should increase their motivation and satisfaction (Bach, 1965; Zeitlin, 1969). A few empirical studies have been conducted that provide some support for the social relations approach. These studies have shown that information flow improved (Hundert & Greenfield, 1969), communication and socializing increased (Ives & Ferdinands, 1974), group sociability improved (Brookes & Kaplan, 1972), and ease of communication improved (Allen & Gerstberger, 1973) after employees moved from a conventional office to an open-plan office.

A second theoretical approach that can be used to understand how the physical work environment influences employee outcome is the sociotechnical approach (Rice, 1958). According to this approach, boundaries can transform a work area into a private, defensive space. When a work area is bounded by walls (as in conventional offices), it is expected that an individual experiences a greater sense of privacy than if no boundaries exist (as with open-space offices). Further, when a work area is surrounded by barriers (as in conventional offices) employees can better identify their task, their equipment, and the technology available to complete their jobs. Unlike the social relations approach, advocates of the sociotechnical approach would predict that open-space offices would adversely affect task identity, feelings of autonomy, supervisor and co-worker feedback, and friendship opportunities. Recent research by Oldham and Brass (1979) examine the reactions of employees to work after they moved from a conventional office to an open-plan office design. Since many predictions generated from a sociotechnical perspective differ considerably from those proposed within a social relations framework, the main purpose of the research was to see which approach is more accurate. Data were collected from 81 employees at a midwestern newspaper three times—once before the move to the open-plan office and twice after the facility change. Their results showed that employee satisfaction and internal motivation *decreased* significantly after the move to the open office. Their statistical analyses suggest that changes in job characteristics that accompanied the change in facilities explain much of the decline in satisfaction and motivation. Specifically, many employees indicated that they experienced the new office space as a "fishbowl," "cage," or "warehouse." These descriptions reflected on their ability to concentrate at work, to develop close friendships, and to complete a job. These results provided stronger support for the sociotechnical approach than for the social relations approach. As such, this research casts doubt on the use of open landscapping, as does an interesting study by Sundstrom, Burt, and Kamp (1980). These researchers examined the relationship between architectual privacy, psychological privacy, job satisfaction, and job performance. According to the researchers, architectural privacy means visual and acoustical isolation. The two were found to be related; the greater the architectural privacy, the greater the psychological privacy. Their research revealed that employees were more productive when their offices were pleasant, private, and quiet. Lack of privacy is a common complaint heard about offices. Many office personnel say that their productivity could have been better if they simply had more privacy (Douglass, 1981). The poet Robert Frost once wrote, "Good fences make good neighbors." Perhaps, good walls also make productive workers, and open offices are not high enough walls. Obviously, this is an area in which further research is needed.

SUMMARY

We have seen in this chapter that there are many factors in the work environment that can either facilitate or inhibit a worker's performance and satisfaction. Looking at the work environment in a positive way, it is evident that the human factors engineer can do much to increase employee productivity and/or satisfaction by shortening the workweek to a 4/40 schedule, incorporating flexitime, minimizing or eliminating shift rotation, installing proper atmospheric conditions and lighting, installing music, minimizing noise, implementing safety and health programs, providing sufficient rest pauses, installing robots for the dirty and dangerous tasks, and trying out on a trial basis open-plan office design.

REVIEW AND DISCUSSION QUESTIONS

1. Define or explain each of the following key terms: *human factors engineering, compressed workweek, flexitime, graveyard shift, luminance ratio, OSHA, workers' compensation laws, psychological fatigue, robotics, open-plan offices, sociotechnical approach.*
2. What has research shown regarding the affect of the 4/40 schedule on productivity and worker acceptance of it?
3. Discuss the advantages and disadvantages of installing flexitime in an office setting.
4. What are some organizations doing today to minimize circadian desynchronosis?
5. Describe the physiological and performance effects brought about by heat stress and cold stress.
6. If you were asked to design the *ideal* factory work environment, what would it be like?
7. What have you learned about illumination that you could apply when you are studying?
8. Discuss the effects of music on worker attitudes and performance.
9. What has the Occupational Safety and Health Administration accomplished so far concerning noise control?
10. Discuss the effects of industrial noise on hearing loss.
11. Describe the difference in purpose between workers' compensation laws and OSHA laws.
12. Are you in favor of increasing the installation of robots in our country? Explain your reasoning.
13. What affect do open-plan offices have on privacy?
14. Would you recommend open-plan offices if someone asked your opinion?

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